

APR 29 1958

Miss Dune

CANADA
DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES

NATIONAL MUSEUM OF CANADA
Bulletin No. 150

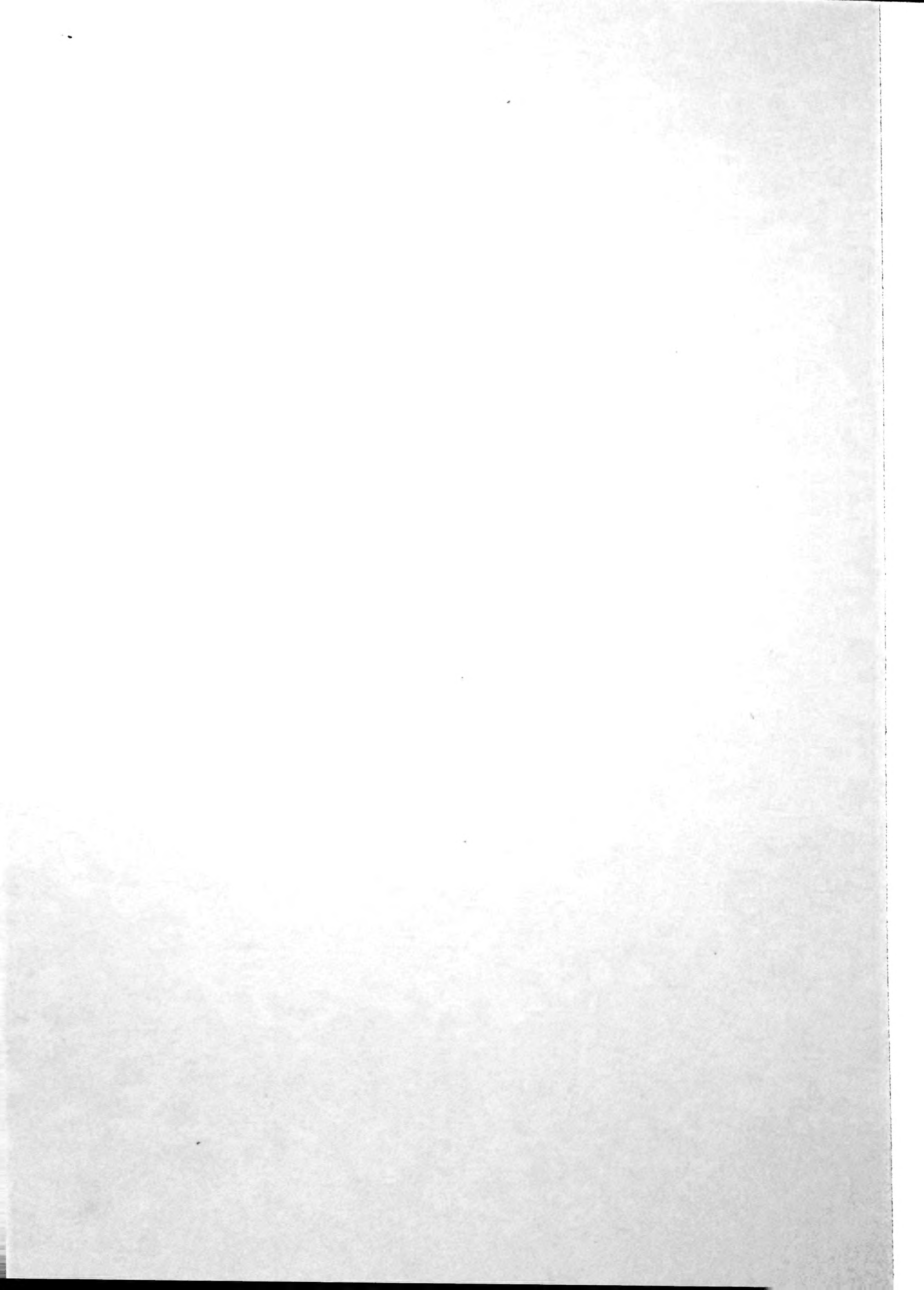
AN ANNOTATED LIST OF
THE MARINE ALGAE OF BRITISH COLUMBIA
AND NORTHERN WASHINGTON
(Including Keys to Genera)

BY
Robert F. Scagel

1957

LIBRARY
NATIONAL MUSEUM
OF CANADA

Price, \$2.00





CANADA
DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES

NATIONAL MUSEUM OF CANADA

AN ANNOTATED LIST OF
THE MARINE ALGAE OF BRITISH COLUMBIA
AND NORTHERN WASHINGTON
(Including Keys to Genera)

BY
Robert F. Scagel

BULLETIN No. 150
BIOLOGICAL SERIES No. 52

Issued under the authority of
The Honourable Alvin Hamilton, Minister of Northern Affairs
and National Resources, Ottawa

1957

Price, \$2.00

95712—1

FOREWORD

The chief purpose of the present bulletin is, to quote the author, Dr. Robert F. Scagel, Assistant Professor, Department of Biology and Botany and Institute of Oceanography, University of British Columbia, Vancouver, B.C., "to summarize and present the available data in the literature and herbaria in a revised and up-to-date form which will be a logical basis for further study in this area." Numerous new records of distribution have extended the known ranges of many of the marine algae of the Pacific Coast between approximately latitudes 47 and 56 degrees North. Professor Scagel has also undertaken, as far as possible, to assign many doubtful earlier records to their proper places in spite of numerous changes of name or interpretation during the past century and a quarter.

The study of marine algae is a very specialized branch of biology, into which few persons in Canada at the present time are qualified to delve. Specimens collected during the period 1887-1909 by John Macoun, first botanist to the Geological Survey of Canada and founder of the National Herbarium of Canada, have awaited the present time for their incorporation in usable form, the National Herbarium never having had a phycologist on its staff. It is believed that this bulletin will justify itself in stimulating further research on the marine algae of Canada and in arousing an interest in a natural resource having a practical bearing upon our fishing industry.

OTTAWA, June 20, 1956

F. J. ALCOCK,
Chief Curator.

CONTENTS

Introduction.....	1
Acknowledgments.....	2
Geographic and oceanographic boundaries.....	2
History.....	3
Reference material.....	6
Collections.....	7
Scope.....	7
Content of annotated list.....	8
Keys.....	9
Key to the genera of Chlorophycophyta.....	9
Key to the genera of Phaeophycophyta.....	12
Key to the genera of Rhodophycophyta.....	16
Key to the genera of Chrysophycophyta.....	30
Annotated lists.....	31
Chlorophycophyta.....	31
Phaeophycophyta.....	66
Rhodophycophyta.....	124
Chrysophycophyta.....	246
Appendix of place names.....	247
Bibliography.....	256
Index to place names.....	270
Systematic index.....	274
Glossary.....	284

Illustrations

Figure 1. Map showing the general geographic features of the coast of British Columbia and Northern Washington, and indicating the limits of the area considered.....	vi
---	----

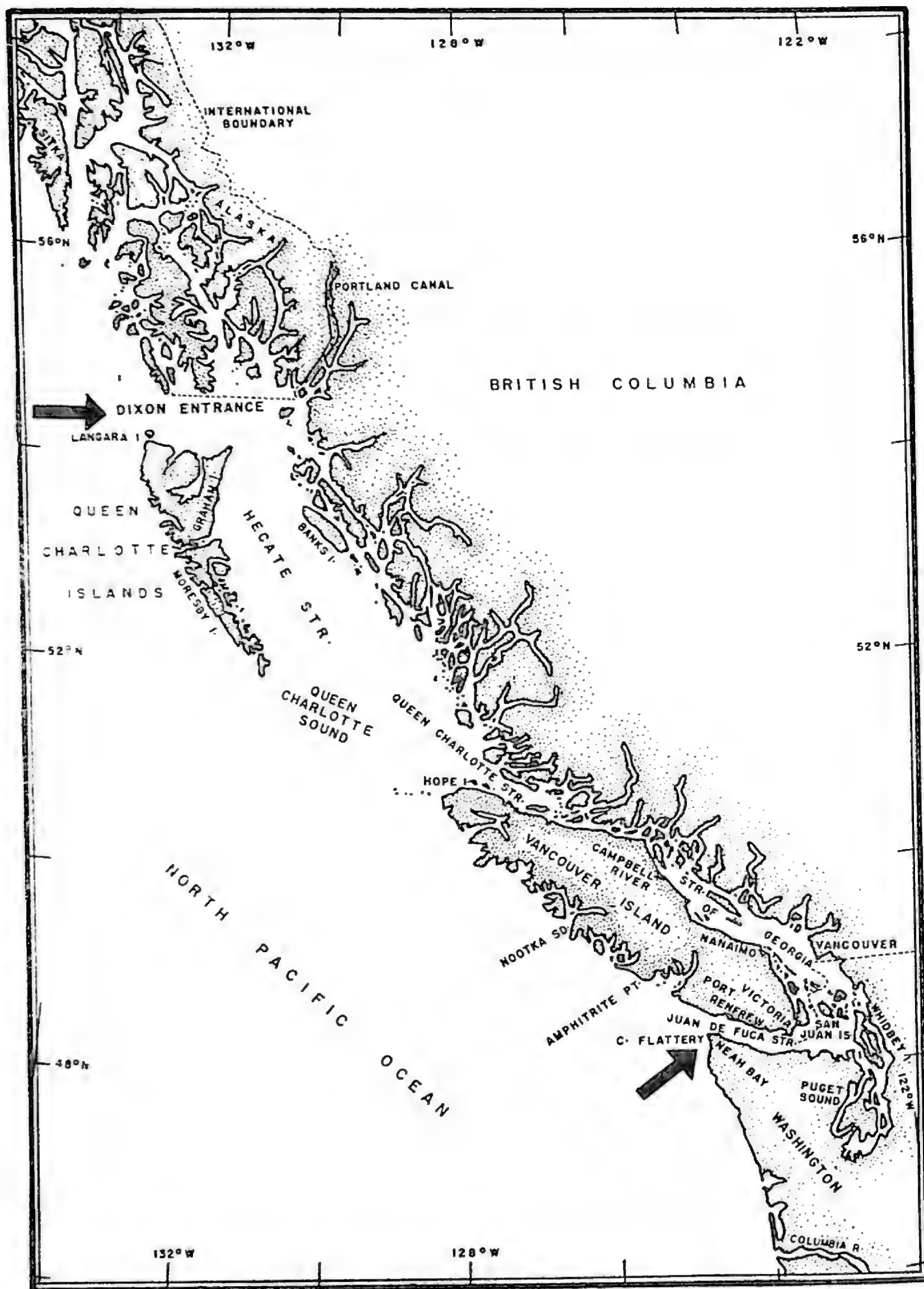


Figure 1. Map showing the general geographic features of the coast of British Columbia and Northern Washington, and indicating the limits of the area considered.

AN ANNOTATED LIST OF THE MARINE ALGAE OF BRITISH COLUMBIA AND NORTHERN WASHINGTON

INTRODUCTION

This is the first in a series of papers which the author hopes will culminate in a comprehensive manual—complete with illustrations and keys—to the species of marine algae of British Columbia and Northern Washington. A preliminary key to the genera of marine algae in the area, based on the present check list is included.

In developing any line of research in biology a knowledge of the flora and fauna must form the basis of all studies. This is particularly true of studies in marine ecology, productivity, and, as Clemens (1933) has pointed out, even "in oceanography, in the inclusive understanding of the term as embracing the physics, chemistry and biology of the ocean, the systematic collection and identification of the organisms inhabiting the sea must occupy a fundamental place."

If one waited until any one phase of scientific investigation were completed to the satisfaction of everyone before publishing a paper, little progress would be made, and libraries would be barren of volumes to which one could turn for advice, guidance, and exchange of ideas. The person least satisfied with a paper when it appears in print is usually the author—certainly no one is more aware of its shortcomings. In this respect this paper is by no means an exception. The only excuse for its presentation is that it may serve as a starting-point from which further knowledge of the marine algae in this relatively little-known area may develop. It is hoped that the effort which has gone into the preparation of the paper will succeed in stimulating others in this region to develop an interest in marine phycology. Only by arousing such an interest will it be possible to further increase our knowledge of the marine algae. If this objective is reached, then the publication of this paper will be justified and no further apology will be required for presenting it with its possible errors, omissions, and obvious limitations.

Many of the algae referred to in earlier publications have never been found since their occurrence was first recorded. A few of the earlier records are rather questionable, and many of the algae which have been recorded for the area have undergone so many changes in name that the junior student can make little direct use of the literature applying specifically to this part of the coast. It is hoped that this list, together with the keys provided, will assist the student in making use of the available literature until such time as a more comprehensive manual is available for this part of the coast.

ACKNOWLEDGMENTS

I should like to acknowledge the financial assistance which has been given toward the completion of this project by the University of British Columbia through the President's Research Fund. In addition, I should like to acknowledge the assistance which has been given through the loan of specimens from the Herbaria of the British Columbia Provincial Museum, Victoria; of the National Museum of Canada, Ottawa; of the Department of Botany and the Friday Harbour Laboratories of the University of Washington; of the University of California; and of the University of British Columbia. In addition to the author's collections of marine algae, which are deposited in the Phycological Collection of the Herbarium of the University of British Columbia, this study has been augmented by personal collections contributed to the University of British Columbia over a period of years by Mrs. Miriam Armstead, Professor John Davidson, Dr. A. H. Hutchinson, and Professor R. W. Pillsbury.

To Dr. Richard E. Norris, who very kindly provided a number of new records supported by herbarium material, which will be deposited in the Herbaria of the University of Washington, the University of Minnesota, and the University of British Columbia, I should like to express my sincere thanks.

I should also like to acknowledge the helpful assistance of Dr. P. C. Silva, University of Illinois, who very kindly provided the citations from his manuscript (1957) on "Notes on Pacific Coast marine algae."

As a result of an association in various capacities with a number of organizations over a period of several years, it has been possible for the author to collect and observe marine algae in many inaccessible parts of British Columbia and northern Washington. In this connection I am particularly indebted to the British Columbia Research Council, the National Research Council of Canada, the Defence Research Board, the Provincial Fisheries Department, the Fisheries Research Board, and the University of Washington, who have provided transportation and other facilities.

GEOGRAPHIC AND OCEANOGRAPHIC BOUNDARIES

Although the area which has been circumscribed for consideration in this paper is largely within the boundaries of the Province of British Columbia, it is primarily oceanographic rather than provincial in its scope. It is that part of the Pacific Coast of North America which lies roughly on the open coast between latitudes 48 degrees North ($47^{\circ}1'N$. including the lower reaches of Puget Sound) and 55 degrees North ($55^{\circ}54'N$. including the upper reaches of the Portland Canal). Geographically this is the section of coastline approximately from Juan de Fuca Strait at the south to Dixon Entrance at the north; it includes all of the waters communicating with the open Ocean within this length of coastline (See Figure 1).

This demarcation has been made for a number of reasons.

The phytogeographer, oceanographer, ecologist, and phycologist want to know not only what has been found and what they can expect to find again, but also what they may anticipate finding as a result of more intensive exploration. The use of strictly provincial or international boundaries results in artificial limits in distribution and proves misleading to one not intimately acquainted with the geographic peculiarities of this part of the Coast. For example, the waters of Puget Sound and the Strait of Georgia, as well as the opposing American and Canadian shores of Juan de Fuca Strait, are not discretely separated oceanographically. In contrast, geographically, the southernmost part of Vancouver Island ($48^{\circ}16'N.$) in British Columbia lies farther south than the northernmost parts of the State of Washington. On the other hand, in the State of Washington the lower reaches of Puget Sound ($47^{\circ}1'N.$) extend farther south than does the entrance of Juan de Fuca Strait ($48^{\circ}23'N.$). Similarly at the north, the upper reaches of the Portland Canal ($55^{\circ}54'N.$) in British Columbia extend farther north than the southernmost extremity of Alaska ($54^{\circ}39'N.$).

Also there have been numerous records of the occurrence of marine algae in the San Juan Islands, Puget Sound and Neah Bay, at Nanaimo, Sidney, and in the Strait of Georgia, as well as in other regions in waters either common to both countries or in close proximity to channels within the limits of one or the other country. There is little doubt concerning the common occurrence of many of the algae found at any one of these points of exploration. Thus a list based on oceanographic rather than international or provincial boundaries is of much greater value, particularly in the southern part of this area.

The southern boundary of the area considered in this paper is essentially the same as that established by Setchell and Gardner (1903). The outer coasts of Washington and northern Oregon are still not well known phycologically, but somewhere in this region (probably near the Columbia River) there is an apparent transition to the more typical floras of central Oregon and northern California. The northern boundary selected in this paper eliminates the more typically arctic element from consideration. A few of the more northern species do extend down from the arctic regions into the area being considered here, but there is an apparent line of demarcation somewhere (probably near Sitka) along the Alaska "panhandle" to the north of Dixon Entrance. As the distribution of marine algae in this part of Alaska is still relatively unknown, the region of transition has not been clearly established.

HISTORY

The development of marine botany in any part of the world is invariably intimately linked with the early navigation of exploration. This is particularly true of the Pacific Coast of North America.

Early Russian and American hunters and merchantmen undoubtedly knew parts of the coast of British Columbia, particularly the west coast of Vancouver Island. As early as 1592 Juan de Fuca Strait was known by the Spanish. Otherwise, however, only the native Indian inhabitants were familiar with the Coast before the voyage of Captain James Cook to the Pacific Northwest in the year 1778.

Cook set sail from England on July 12, 1776, in the *Resolution* in search of a northern passage between the Atlantic and Pacific oceans. After leaving the Sandwich Islands (Hawaiian Islands) the first point he visited on the North Coast was "New Albion" (on the Coast of Oregon) on March 7, 1778. On his voyage northward, however, he missed Juan de Fuca Strait (although he charted Cape Flattery) by skirting the rest of the dreaded American shore, except for pausing in Nootka Sound on the west coast of Vancouver Island between March 29 and April 26, 1778. He did not touch land again until he reached the Alaska Coast. Cook was never to see the Coast of British Columbia again because of his tragic and untimely death, at the hands of natives on the island of Hawaii, on his return trip to the South Pacific.

One of the greatest misfortunes in the early development of botany in British Columbia was the absence from this voyage of exploration of such notable men as Joseph Banks, a botanist of great accomplishment, and Solander, his principal naturalist and a pupil of Linnaeus. These men, who had been with Cook on his first voyage, had planned to accompany him on his later voyages, but various difficulties arose during the planning of these expeditions and Cook set sail without them.

The Spanish, under Eliza (1790), Eliza and Narvaez (1791), Caamano (1792), and Galiano and Valdes (1792), were active in exploring for a brief period shortly after Cook left, particularly along the East Coast of Vancouver Island in the Strait of Georgia and among the San Juan Islands.

However, a young midshipman, George Vancouver, who had accompanied Cook on his third voyage, was to return to this Coast and make history. With two ships under his command—the *Discovery* and the *Chatham*—Captain George Vancouver returned. Together with Broughton, between April 1791 and October 1795, he is celebrated for his detailed examination of the North Coast from "New Albion" (on the coast of Oregon) northward into many parts of the extensive and extremely intricate channels and passages along the coast of British Columbia and to some extent in Puget Sound and Alaska. With Vancouver on this voyage of exploration there was a naturalist—Dr. Archibald Menzies. Neither was this Menzies' first trip to the North Coast. Menzies had been to the Northwest Coast in a fur-trading vessel, the *Prince of Wales*, about 1786, and although he spent a month botanizing in the woods at Nootka on the west coast of Vancouver Island during this voyage, he does not appear to have collected any marine algae. Menzies apparently also visited the Queen Charlotte Islands and Banks Island briefly during this voyage (Newcombe, 1923) returning to England in 1789. Although Menzies' collections of plants, even on his voyage with Vancouver, consisted largely of land forms, he collected some marine algae and thus became the first naturalist to explore the algal treasures of the Pacific Northwest. He returned to Europe with these plants. Some of the algae collected came from the coast of British Columbia, particularly from Nootka Sound on the west coast of Vancouver Island and Banks Island, and other specimens were collected in California and Alaska. Menzies' collections of algae from British Columbia were later described by Turner (1808-19) and Esper (1802-04) and eventually became the possession of the Edinburgh Botanical Garden.

In 1841 the United States Exploring Expedition, under Commander Charles Wilkes, visited the Puget Sound region and collected some algae. These plants were described later by Harvey and Bailey in 1851 and Harvey in 1862.

The first extensive collection of algae made in this area, however, was by David Lyall, Esq., M.D., R.N. in the years 1859-61. It was made chiefly in the southern part of British Columbia in Juan de Fuca Strait, in Esquimalt and Victoria Harbours, in Burrard Inlet, and at Nanaimo and "Sumas Prairie," and included material from San Juan Island (Griffin Bay), Orcas Island, and Point Roberts, in northern Washington. All of these algae, which were sent for identification to the distinguished phycologist Harvey, at Dublin, are now in the Herbarium of Trinity College in that city and are recorded in a publication by Harvey dated 1862.

As a result of the interest of Josephine Tilden and a number of her associates and students, chiefly from the University of Minnesota, there was established at the turn of the present century the "Minnesota Seaside Station" at Port Renfrew on the west coast of Vancouver Island. Here, up until the year 1906, a contribution was made to our knowledge of the marine algae of the west coast of Vancouver Island in the vicinity of Juan de Fuca Strait in British Columbia by Tilden (1894-1902), MacMillan (1899, 1900, 1902a, and 1902b), Yendo (1902a), Butler and Polley, and a few other botanists. A record of a part of this contribution appeared in *Postelsia*, a year-book publication which appeared in two volumes (1902 and 1906) during the short period that the station continued in operation. As a result of the work of Tilden (1894-1902) quite a number of marine algae from the vicinity of Vancouver Island and Puget Sound were distributed in her *Centuries of American Algae*.

In the years 1887, 1893, 1908, and 1909, a naturalist, John Macoun, on the Geological and Natural History Survey of Canada, collected marine algae at various localities on Vancouver Island, chiefly near Qualicum, Nanaimo, Sidney, Victoria, and Ucluelet. Many of these were later identified by F. S. Collins at Malden, Massachusetts, and provided most of the material for his paper *The Marine Algae of Vancouver Island* published in 1913. Many of Macoun's specimens are in the Herbarium of the National Museum of Canada, Ottawa, while some are in the Herbarium of the Provincial Museum, Victoria, British Columbia.

DeAlton Saunders, who accompanied the famous Harriman Alaska Expedition in 1899, collected a few marine algae in the vicinity of Victoria and in Puget Sound and published records of these in 1901 along with the material collected in Alaska.

In 1928 Robert Connell published a list of algae collected in the vicinity of the Biological Station at Departure Bay, British Columbia, in the years 1924, 1925, and 1926. Most of these plants were identified by N. L. Gardner.

The first noteworthy attempt to assemble the published data and available collections of the marine algae of the Pacific Coast of North America was made in the United States by W. A. Setchell and N. L. Gardner in 1903. Included in this work are references to Macoun's collections from Vancouver Island and to those of Miss Eloise Butler and Miss

Jessie E. Polley from the vicinity of Port Renfrew and Victoria. Because of the combined efforts of Setchell and Gardner, at first independently and later jointly, and starting just before the beginning of the present century, these two eminent phycologists were responsible for a tremendous advancement in the knowledge of the marine algae of the Pacific Coast of North America over a period of almost fifty years. Despite this extensive contribution by Setchell and Gardner, particularly on the green and brown algae, their work in the North Pacific was confined largely to algae collected along the coast of the United States and Alaska. Setchell collected only to a limited extent on the west coast of Vancouver Island, at Departure Bay, Esquimalt, and a few other points in this area. Gardner, however, collected rather extensively in the vicinity of Puget Sound, the San Juan Islands, and especially at Whidbey Island and Neah Bay in northern Washington.

With the establishment of the Puget Sound Biological Station (later to become the Friday Harbor Laboratories) of the University of Washington in 1904, and as a result of the work of T. C. Frye (1906, 1915, and 1918), G. B. Rigg (1912a, 1912b, 1915a, 1915b, and 1917) and a number of their students and associates on brown algae, and particularly with the extensive work on the red algae by H. Kylin from Lund, Sweden, who was a visiting professor in the summer of 1924, further important contributions were made to the knowledge of the marine algae in northern Washington.

A check list of the marine fauna and flora of the Canadian Pacific Coast issued in 1933 by W. A. Clemens included most of the published records of the algae which had been found on the Coast of British Columbia up to that date.

Although the published lists and descriptions of algae from the Pacific Coast of North America, and particularly those for the region adjacent to the southern part of British Columbia, have added considerably to our knowledge of the northeast Pacific, very little is known and very little has been recorded of the distribution of the marine algae along the greater part of the coastline of British Columbia. This is particularly true of the northern part of the coast of British Columbia. Furthermore, even in the southern part of British Columbia our knowledge of the marine algae is obviously still very incomplete. Thus there is a portion of coastline in British Columbia alone covering a distance of nearly 600 miles directly from south to north along the open Coast, and an estimated 25,000 miles of actual coastline—if all the various ramifications are included—about which very little concerning the distribution of marine algae is known.

REFERENCE MATERIAL

Most of the pertinent literature has been cited in the bibliography, though no attempt has been made to make this list exhaustive. In the systematic list, references are given to the original descriptions as well as to the more readily available and useful literature. It is unfortunate that many of these earlier publications are not only out of print but are rare and difficult to obtain. For those algae which are common to both this area and central California, Smith's *Marine Algae of the Monterey*

Peninsula, California will prove of some help. For additional synonymy and reference to the older taxonomic literature the reader is referred to some of the more comprehensive publications listed in the bibliography.

COLLECTIONS

Since 1946 the author has frequently collected marine algae at a number of points throughout the area demarcated by the boundaries established in this paper, particularly at the north end of Vancouver Island and at the north end of the Queen Charlotte Islands (Langara Island), as well as from Sooke on the west coast of Vancouver Island, from various points among the San Juan Islands and along the Olympic Peninsula in Northern Washington. These collections have not yet been studied exhaustively since the positive identity of many specimens is dependent on a number of much-needed monographs. They have provided the basis, however, for a large number of new records of distribution.

In addition, phycological collections of the Herbaria of the University of British Columbia, the Department of Botany and the Friday Harbor Laboratories of the University of Washington, the Department of Botany of the University of California at Berkeley, the British Columbia Provincial Museum in Victoria, and the National Museum of Canada, Ottawa, have been examined.

This review of herbarium specimens and study of recent material from various points scattered throughout the length of the Coast of British Columbia, particularly from the Queen Charlotte Islands, and some additional material from Alaska, has added greatly to the picture of distribution of the marine algae in the area under consideration.

It is obvious from the published records of species (Dawson, 1946; Doty, 1947; Taylor, 1945; Setchell and Gardner, 1903 *et seq.*) obtained from sections of the Pacific Coast which are somewhat better known (Mexico, California, Oregon, Washington, and Alaska) that, in certain instances, there is a continuous distribution extending from California (or even farther south) to Alaska and the Bering Sea. On the other hand, as a result of the restriction largely to southern British Columbia of collections which have been recorded, there is often an artificial boundary of northward distribution frequently terminating at Vancouver Island. Also most of the exploration recorded in British Columbia has been in the inner and shallower waters of the area. This has frequently resulted in apparent discontinuous distributions.

It is still not possible to treat the distribution of marine algae in this area as comprehensively as is desirable, but this will not be possible until such time as more extensive collections, particularly from deeper waters, are available.

SCOPE

The chief purpose of this paper is to summarize and present the available data in the literature and herbaria in a revised and up-to-date form which will be a logical basis for further study in this area.

Secondly, its purpose is to indicate forms whose occurrence should be anticipated in any investigation into local regions within the boundaries arbitrarily set, as already indicated.

Thirdly, it is designed to present new but so far unpublished records of distribution which have become known chiefly as a result of a study of more recent collections of marine algae from various points in the area. A number of new records of distribution have been added which have extended the previously recorded northward or southward distributions. In some instances distributions which, on the basis of published records, were apparently discontinuous, have been linked.

Fourthly, it is hoped that the keys to genera will assist in the identification of the local flora and lead the reader to pertinent descriptive and illustrative reference material.

CONTENT OF ANNOTATED LIST

With the exception of two marine, filamentous species of Yellow-Green Algae (*Vaucheria* and *Ostreobium*), which belong to the Phylum Chrysophycophyta (Class Xanthophyceae), only three groups of marine algae are considered in this list. The Phyla treated are the more conspicuous groups; namely, the Chlorophycophyta (Green Algae), the Phaeophycophyta (Brown Algae), and the Rhodophycophyta (Red Algae). Although some unicellular and other microscopic algae are included in the list, it is likely that more intensive study will show it to be rather incomplete in this respect. The Cyanophyceae (Blue-Green Algae), Pyrrophyphyta (Dinoflagellates) and Bacillariophyceae (Diatoms) are so cosmopolitan in their distribution and represent such specialized aspects of phycology that the interested student is referred for assistance and information to Clemens' (1933) check list, literature pertaining specifically to marine phytoplankton (Gran and Angst, 1931; Cupp, 1943; Wailes, 1937 and 1939) or a comprehensive manual of these distinctive groups of microscopic forms.

Included in this list are 478 species (including forms and varieties) in 189 genera which are recorded within the boundaries established in this paper. Of this number, 29 genera are Green Algae, 2 are Yellow-Green Algae, 46 are Brown Algae, and 112 are Red Algae; 85 species (including forms and varieties) are Green Algae, 2 are Yellow-Green Algae, 131 are Brown Algae, and 260 are Red Algae. Not all citations are given in the reference material, but only the more important which will lead the reader to other pertinent literature.

In the following list the general distribution is indicated only for the Pacific Coast of North America and is based on published data and the new records introduced in this paper as a result of the examination of additional and more recent collections. Specimens referred to by number following the initials RFS (Robert F. Scagel) are deposited in the Phycological Collection of the Herbarium of the University of British Columbia. Specimens referred to by number following the initials REN (Richard E. Norris) are deposited either in the Herbarium of the University of Washington, the Herbarium of the University of Minnesota, or the Herbarium of the University of British Columbia. In addition, some specimens from

the Phycological Collection of the Herbarium of the University of British Columbia (UBC), from the Provincial Museum, Victoria (V), from the National Museum of Canada, Ottawa (CAN), from the University of California, Berkeley (UC) and the University of Washington, Seattle (UW), and from the Friday Harbor Laboratories (FH), are cited.

KEYS

KEY TO THE PHYLA OF ALGAE (4)

1. Thallus distinctly green in colour because of the presence of unmasked chlorophyll.....Phylum 1. CHLOROPHYCOPHYTA, p. 31
1. Thallus variously coloured because of the presence of accessory pigments masking the green pigment. . . . 2.
 2. Thallus usually olive-brown in colour owing to the presence of accessory pigments which mask the chlorophyll; reproduction at some stage typically involving biflagellate cells, with the flagella unequal in length and borne laterally.....Phylum 2. PHAEOPHYCOPHYTA, p. 66
 2. Thallus not olive-brown in colour..... 3.
3. Thallus usually rose-red, sometimes purplish or almost black (often fading and becoming somewhat greenish when growing in the intertidal zone); no reproductive stage with flagellated cells.....Phylum 3. RHODOPHYCOPHYTA, p. 124
3. Thallus yellowish green in colour owing to the presence of accessory pigments (the only genera treated in this publication are *Vaucheria* and *Ostreobium* which have a coenocytic, filamentous organization)Phylum 4. CHRYSOPHYCOPHYTA, p. 246

KEY TO THE GENERA OF THE PHYLUM CHLOROPHYCOPHYTA (29)

1. Plant body non-motile, unicellular or multicellular..... 2
1. Plant body motile, unicellular, biflagellate (growing usually in spray pools near high-tide mark).....37
 2. Growing superficially on various substrata, including rocks and other organisms..... 3
 2. Growing epiphytically on other algae or within the shells of molluscs..... 31
3. Thallus a branched or unbranched filament, with or without transverse walls..... 17
3. Thallus not composed of freely branched filaments..... 4
 4. Thallus forming a thick, spongy encrusting layer, consisting of a densely compacted network of microscopic, branched, coenocytic filaments..... CODIUM, p. 64
 4. Thallus not forming a spongy encrusting layer..... 5
5. Thallus erect, cylindrical, tubular or markedly flattened..... 7

5. Thallus hemispherical to globose 6
 6. Thallus oval or globose, one-celled, with penetrating rhizoids (growing usually on encrusting coralline algae and found only on the exposed coast) HALICYSTIS, p. 61
 6. Thallus multicellular with cells irregularly distributed through a colourless, gelatinous matrix COLLINSIELLA, p. 31
7. Thallus markedly flattened 8
7. Thallus cylindrical, branched or unbranched 12
 8. Thallus one cell in thickness 9
 8. Thallus two cells in thickness 10
9. Thallus foliaceous, less than 1 cm. broad, cells usually arranged in groups of fours or multiples (growing usually on rocks coated with droppings from sea birds near high-tide mark) PRASIOLO, p. 46
9. Thallus more than 1 cm. broad (saccate when young) MONOSTROMA, p. 34
 10. Base of plant consisting of several creeping, branched filaments fused together into a basal disc from which several narrow (1-3 mm. broad), unbranched, erect axes arise; erect axes frequently somewhat swollen BLIDINGIA, p. 36
 10. Base of plant not composed of a filamentous disc from which several erect axes arise 11
11. Thallus a markedly flattened plate of two cell layers with no open space between ULVA, p. 43
11. Thallus tubular at maturity, slender or inflated, with wall one-cell layer in thickness, sometimes markedly flattened toward the apex ENTEROMORPHA, p. 38
12. Thallus cylindrical, usually unbranched 13
12. Thallus cylindrical and branched 15
13. Base of plant consisting of several creeping, branched filaments fused together into a basal disc from which several erect, narrow (1-3 mm. broad), unbranched erect axes arise; erect axes frequently somewhat flattened and swollen BLIDINGIA, p. 36
13. Base of plant not composed of a filamentous disc from which several erect axes arise 14
 14. Thallus hollow or tubular, slender or inflated, often flattened at the apex, wall one cell in thickness ENTEROMORPHA, p. 38
 14. Thallus a solid cylinder constricted at intervals . . PRASIOLO (ROSENVINGIELLA), p. 47
15. Thallus dichotomously branched, branches more than 5 mm. in diameter, consisting of a densely compacted spongy network of microscopic, coenocytic filaments CODIUM, p. 64
15. Thallus consisting of a single, branched, tubular cell or branched filament (coenocyte) without transverse walls, not organized in a spongy network 16
 16. Branching profuse with radially, bilaterally, or pinnately arranged determinate branchlets arising from erect indeterminate axes BRYOPSIS, p. 62
 16. Unbranched or sparingly branched; where branched, branching is irregular, unilateral or more or less dichotomous with no differentiation in habit between axis and branchlets DERBESIA, p. 63

17. Filaments unicellular, tubular, without transverse walls..... 18
17. Filaments with transverse walls..... 19
18. Branching profuse with radially, bilaterally, or pinnately arranged determinate branchlets arising from erect more or less indeterminate axes.....BRYOPSIS, p. 62
18. Unbranched or sparingly branched; where branched, branching is irregular, unilateral, or more or less dichotomous with no differentiation between axis and branchlets.....DERBESIA, p. 63
19. Filaments entangled in mats that are frequently free-floating; filaments unbranched or restricted to short lateral branches.... 20
19. Filaments sessile, not bent and entangled with one another; filaments branched or unbranched..... 22
20. Filaments with cells symmetrically placed in double rows; forming entangled masses in tide pools and lagoons.....PERCURSARIA, p. 45
20. Filaments uniseriate; occasionally 2 or 3 cells in width in an otherwise uniseriate filament..... 21
21. Filaments unbranched; cells with a single coarse parietal, reticulate chloroplast.....LOLA, p. 49
21. Branching restricted to a few short lateral branches (occasionally unbranched).....RHIZOCLONIUM, p. 47
22. Chloroplast a transverse band almost encircling the cell; short, uninucleate cells; filaments unbranched with a basal holdfast cell.. ULOTHRIX, p. 32
22. Chloroplast not a transverse band..... 23
23. Filaments abundantly branched; adjacent branches united in rope-like strands by means of short, unbranched, narrow, sometimes almost colourless recurved branchlets.....SPONGOMORPHA, p. 56
23. Filaments not united in rope-like strands..... 24
24. Filaments with cells symmetrically placed in double rows; forming entangled masses in tide pools and lagoons.....PERCURSARIA, p. 45
24. Filaments uniseriate; occasionally 2 or 3 cells in width in an otherwise uniseriate filament..... 25
25. Filaments repeatedly branched..... 26
25. Filaments unbranched or restricted to a few short lateral branches or rhizoidal branches..... 27
26. Cells in filament multinucleate with a single parietal, reticulate chloroplast or numerous discoid chloroplasts.....CLADOPHORA, p. 52
26. Cells in filament uninucleate with a cup-shaped chloroplast which is lobed at one end.....PRASINOCCLUSUS, p. 32
27. Filaments unbranched except for short rhizoidal branches serving for attachment; cells with a single, stellate, axial chloroplast.....PRASIOCLA (SCHIZOGONIUM) p. 46
27. Filaments unbranched or restricted to a few short lateral branches; filaments with or without differentiated basal cell or cells.....28
28. Filaments unbranched with differentiation of basal attachment cell(s).....29

28. Filaments unbranched (or with a few short lateral branches without differentiation of basal cell(s)); usually in entangled masses.....30
29. Basal cell several times longer than cells in upper part of filament; several short rhizoids arise from basal cell forming holdfast.....CHAETOMORPHA, p. 52
29. Basal cell not more than double length of cells in the upper part of filament; attachment by basal holdfast and rhizoidal supports developing from a few neighbouring cells.....UROSPORA, p. 50
30. Filaments unbranched; coarse parietal, reticulate chloroplast.....LOLA, p. 49
30. Branching restricted to a few short lateral branches (occasionally unbranched).....RHIZOCLONIUM, p. 47
31. Growing within other algae..... 32
31. Growing within shells of molluscs; sometimes in soft rock or wood 35
32. Thallus unicellular..... 33
32. Thallus a branched filament..... 34
33. Cell with a basal stipe or pedicel; ovoid to clavate in shape.....CODIOLUM, p. 60
33. Cell without a basal stipe; oval or spherical in shape.....CHLOROCHYTRIUM, p. 59
34. Thallus a profusely branched filament, forming an anastomosing network; cells with a parietal chloroplast.....INTERNORETIA, p. 34
34. Thallus forming small patches on the membranes of supporting host; an irregularly branched filament with branches radiating from a common centre; single laminate, parietal chloroplast with one or more pyrenoids; hairs and setae absent.....ENTOCLADIA, p. 33
35. Within shells of molluscs (sometimes epiphytic); cells in creeping, branched filaments; cells bearing from one to three simple, long colourless hairs.....PRAEOPHILA, p. 33
35. Within shells of molluscs, chalky rock or wood; cells in filaments without hairs..... 36
36. Irregularly branched, creeping filaments with one to several simple or bifurcate rhizoids on the underside.....GOMONTIA, p. 61
36. Irregularly branched, interwoven, coenocytic filaments, usually irregularly swollen and lobed, particularly at ends of branches..OSTREOBIMUM, p. 246
37. With the surface of the cell longitudinally ridged.....STEPHANOPTERA, p. 31
37. Surface of the cell without ridges.....DUNALIELLA, p. 31

KEY TO THE GENERA OF THE PHYLUM PHAEOPHYCOPHYTA (46)

1. Thallus not filamentous..... 2
1. Thallus filamentous, sometimes with major branches corticated and sometimes with pseudoparenchymatous base..... 56
2. Thallus not forming an encrusting layer..... 3
2. Thallus forming an encrusting layer..... 54

- 3. Thallus cylindrical throughout, or slightly flattened..... 4
- 3. Thallus not cylindrical throughout..... 17
 - 4. Thallus unbranched..... 5
 - 4. Thallus branched..... 7
- 5. Thallus tubular, usually constricted at intervals.....SCYTOSIPHON, p. 88
- 5. Thallus solid, at least in basal region, and not constricted..... 6
 - 6. Thallus solid below, hollow above with cross-partitioning into chambers.....CHORDA, p. 93
 - 6. Thallus solid below, hollow above with colourless, loose central filaments; long surface hairs.....SAUNDERSELLA, p. 79
 - 6. Thallus usually twisted, solid below with a core of large, colourless, isodiametric cells encircled by a layer of thick-walled prismatic cells and a dense mass of assimilating filaments.....MYELOPHYCUS, p. 87
- 7. Branch tips with an apical cell more or less conspicuous..... 8
- 7. Branch tips without an evident apical cell..... 9
 - 8. Apical cell large; cells below it in regular transverse rows.....SPHACELARIA, p. 73
 - 8. Apical cell small; central core of elongated colourless filaments surrounded by polygonal cells.....DICTYOSIPHON, p. 92
- 9. Thallus dichotomously branched..... 10
- 9. Thallus not dichotomously branched..... 11
 - 10. Thallus less than 15 cm. tall, growing at high-tide level; oogonium producing one functional egg.....PELVETIOPSIS, p. 122
 - 10. Thallus 30-60 cm. tall, usually growing slightly below high-tide level; oogonium producing two functional eggs.....PELVETIA, p. 121
- 11. Branches in opposite pairs..... 12
- 11. Branches not in opposite pairs..... 13
 - 12. Young branches with two vertical rows of filaments.....DESMARESTIA, p. 80
 - 12. Young branches without two vertical rows of filaments.....STICTYOSIPHON, p. 85
- 13. Every branch terminating in a single filament..... 14
- 13. None of the branches terminating in a single filament..... 16
 - 14. Thallus gelatinous, loosely organized..... 15
 - 14. Thallus firm, rigid, or cartilaginous; medulla of compacted large and small filaments.....CHORDARIA, p. 79
- 15. Thallus gelatinous; medulla loose, of branched filaments, cells with numerous small discoid chromatophores; short cortical assimilating filaments.....EUDESME, p. 78
- 15. Thallus tips uniseriate; below multiseriate or hollow; branched band-shaped chromatophores in multiseriate portion restricted to superficial cells.....STICTYOSIPHON, p. 85
- 16. Branches usually clothed on all sides with filaments (sometimes only at the extreme tip of the thallus).....HAPLOGLOIA, p. 78

16. Branches not clothed with filaments; plants generally with a conspicuous, erect axis from which arise numerous shorter branchlets.....HETEROCHORDARIA, p. 80
17. Thallus more or less globose..... 18
17. Entire thallus or certain parts of it markedly flattened..... 20
 18. Thallus wholly parenchymatous..... 19
 18. Thallus composed of branched filaments with progressively smaller cells to the surface.....LEATHESIA, p. 77
19. Thallus surface with numerous dark sori.....SORANTHERA, p. 86
19. Thallus surface without sori.....COLPOMENIA, p. 90
 20. Entire thallus, except holdfast, dichotomously branched (or flabellately dichotomous)..... 21
 20. Thallus, if branched, not with the branching dichotomous throughout..... 25
21. Every final dichotomy terminating in a ribbon-like blade.....LESSONIOPSIS, p. 107
21. Final dichotomies not terminating in ribbon-like blades.....22
 22. All except the lowermost dichotomies flattened; with an evident midrib.....FUCUS, p. 112
 22. All dichotomies without an evident midrib..... 23
23. All dichotomies elliptical in cross-section; thallus more than 3 cm. high..... 24
23. Thallus flabellately dichotomous; fan-shaped with zonal arrangement of cells; 2-3 cm. high.....SYRINGODERMA, p. 74
 24. Thallus less than 15 cm. tall, growing at high-tide level; oogonium producing one functional egg.....PELVETIOPSIS, p. 122
 24. Thallus 30-60 cm. tall, growing slightly below high-tide level; oogonium producing two functional eggs.....PELVETIA, p. 121
25. Thallus with a single, sessile, or stipitate blade..... 26
25. Thallus with many leaf- or ribbon-like blades..... 41
 26. Holdfast with evident, root-like haptera..... 27
 26. Holdfast disc-shaped..... 35
27. Haptera radial about the base of stipe..... 28
27. Haptera borne on a prostrate rhizome..... 33
 28. Blade with a percurrent midrib or percurrent ribs... 30
 28. Blade without midrib or ribs..... 29
29. Blade perforated, fan-shaped.....THALASSIOPHYLLUM, p. 101
29. Blade not perforated or fan-shaped.....LAMINARIA, p. 93
 30. With percurrent midrib..... 31
 30. With five or seven percurrent ribs.....COSTARIA, p. 100
31. With sporophylls between holdfast and blade.....ALARIA, p. 108
31. Without sporophylls. 32

32. Blade densely bullate and midrib narrow; blade perforate.....AGARUM, p. 101
32. Blade smooth, slightly wrinkled near midrib; midrib broad..PLEUROPHYCUS, p. 99
33. The rhizome flattened and with haptera restricted to lateral margins or base of blade..... 34
33. The rhizome cylindrical.....LAMINARIA, p. 93
34. Entire surface of blade with a reticulum of ridges; blade long and linear; haptera restricted to lateral margins of rhizome..DICTYONEURUM, p. 104
34. Surface of blade smooth to densely bullate; blade usually short, much dissected and irregularly furled; stipe usually indistinct with haptera arising chiefly from base of blade.....HEDOPHYLLUM, p. 102
35. Blade with a stipe over 5 cm. long..... 36
35. Blade, if stipitate, with stipe usually less than 1 cm. long..... 37
36. Blade with three to five percurrent series of conspicuous folds...CYMATHERE, p. 99
36. Blade without folds.....LAMINARIA, p. 93
37. Blade a markedly flattened sac..... 38
37. Blade solid..... 39
38. Length of blade more than twenty times breadth.....SCYTOSIPHON, p. 88
38. Length of blade less than eight times breadth.....COILODESME, p. 91
39. Blade with conspicuous veins.....DESMARESTIA, p. 80
39. Blade without conspicuous veins..... 40
40. Medullary cells four to five times larger than surface cells; reproductive organs entirely covering surface of blade.....PETALONIA, p. 89
40. Medullary cells approximately same size and shape as surface cells.....PUNCTARIA, p. 86
41. With leaf- or ribbon-like blades borne laterally along an erect axis..... 42
41. Blades not borne laterally along an erect axis..... 48
42. Blades not borne radially about the axis..... 44
42. Blades radially arranged about the axis; bearing small pneumatocysts up to 7 mm. in diameter..... 43
43. Blades in upper region small, flattened, or filiform; fasciculate branches with flattened ribless blades; branches terminating in single or paired, apiculate pneumatocysts.....CYTOSSEIRA, p. 122
43. Flattened branches with a midrib and cryptostomata; pneumatocysts borne singly and not apiculate.....SARGASSUM, p. 123
44. Blades borne unilaterally on branches of axis, each blade with a basal pneumatocyst.....MACROCYSTIS, p. 106
44. Blades in two vertical rows and on opposite sides of axis..... 45
45. Axis terminating in a conspicuous blade..... 46
45. Axis not terminating in a conspicuous blade..... 47
46. Terminal blade with a conspicuous midrib.....ALARIA, p. 108
46. Terminal blade without a midrib.....PTERYGOPHORA, p. 107

- 47. Blades opposite or regularly alternate.....DESMARESTIA, p. 80
- 47. Blades short, densely crowded, and frequently replaced by a pneumato-
cyst.....EGREGIA, p. 111
- 48. Thallus with undivided blades..... 49
- 48. Thallus with divided blades..... 52
- 49. Apex of stipe with a large globose pneumatocyst, stipe very long...NEREOCYSTIS, p. 104
- 49. Apex of stipe lacking a pneumatocyst..... 50
- 50. Stipe undivided and bearing many blades at apex.....POSTELSIA, p. 105
- 50. Stipe dichotomously divided and each final dichotomy with a
single blade..... 51
- 51. Surface of blades smooth.....LESSONIOPSIS, p. 107
- 51. Surface of blades with a network of ridges.....DICTYONEURUM, p. 104
- 52. Blades without pneumatocysts.....DESMARESTIA, p. 80
- 52. Blades with small pneumatocysts up to 7 mm. in diameter;
branches filiform in upper parts..... 53
- 53. Blades in upper region small, flattened or filiform; fasciculate
branches with flattened ribless blades; branches terminating in single
or paired, apiculate pneumatocysts.....CYSTOSEIRA, p. 122
- 53. Flattened branches with a midrib and cryptostomata; pneumatocysts
borne singly and not apiculate.....SARGASSUM, p. 123
- 54. Relatively large, growing on rocks; erect filaments in lateral contact
throughout their entire length.....RALFSIA, p. 73
- 54. Minute and epiphytic..... 55
- 55. Plurilocular reproductive organs one cell in breadth.....MYRIONEMA, p. 75
- 55. Plurilocular reproductive organs more than one cell in breadth....COMPSONEMA, p. 76
- 56. Thallus wholly or almost wholly endophytic.....STREBLONEMA, p. 72
- 56. Thallus free-living or epiphytic..... 57
- 57. Simple or branched, uniseriate, free-living or epiphytic filaments 58
- 57. Filaments tufted or expanded, arising from a colourless basal pseudo-
parenchymatous disc; epiphytic; long free assimilating filaments...ELACHISTEA, p. 77
- 58. Sporangia and gametangia solitary, terminal on short branches..ECTOCARPUS, p. 67
- 58. Sporangia and gametangia in catenate series, intercalary on long
branches.....PYLAIELLA, p. 67

KEY TO THE GENERA OF THE PHYLUM RHODOPHYCOPHYTA (112)

- 1. Thallus calcareous..... 2
- 1. Thallus not calcareous..... 11
- 2. Thallus wholly crustose, slightly or heavily calcified..... 3
- 2. Thallus with erect jointed branches from a crustose base... 8
- 3. Thallus heavily calcified; tetrasporangia zonately divided.... 4

3. Thallus only slightly (if at all) calcified; tetrasporangia cruciately divided.....PEYSSONELIA, p. 147
 4. Tetrasporangiate conceptacle with few to many pores.. 5
 4. Tetrasporangiate conceptacle with a single pore..... 7
5. Thallus hemiparasitic; hypothallium attached by a foot within the tissue of the host.....POLYPOROLITHON, p. 151
5. Thallus autotrophic..... 6
 6. Thallus epiphytic; hypothallium mostly monostromatic; vegetative portion of the thallus less than 15 cells in thickness.....MELOBESIA, p. 149
 6. Thallus rarely epiphytic; hypothallium polystromatic; tetrasporangiate conceptacle superficial or subimmersed; vegetative portion of thallus many cells in thickness.....LITHOTHAMNIUM, p. 148
7. Hypothallium composed of obliquely elongated cells; thallus epiphytic or epizoid; vegetative portion of the thallus up to 15 cells in thickness.....DERMATOLITHON, p. 152
7. Hypothallium polystromatic, composed of isodiametric cells; thallus not epiphytic; vegetative portion of the thallus many cells in thickness.....LITHOPHYLLUM, p. 152
 8. Tetrasporangiate conceptacles restricted usually to the terminal joints (intergenicula) of erect branches; branching of the thallus wholly or partially pinnate.....CORALLINA, p. 156
 8. Tetrasporangiate conceptacles usually restricted to the upper margins of the upper lobes of intergenicula; branching wholly or partially dichotomous.....SERRATICARDIA, p. 155
 8. Tetrasporangiate conceptacles usually lateral on the margins or the flattened faces of the intercalary joints (intergenicula) of erect branches..... 9
9. Fertile intergenicula cylindrical or only slightly compressed; intergenicular medulla unizonal.....LITHOTHRIX, p. 157
9. Fertile intergenicula cylindrical or only slightly compressed; intergenicular medulla multizonal; tetrasporangiate conceptacles scattered over surface of intergenicula.....PACHYARTHON, p. 155
9. Fertile intergenicula markedly compressed; genicula unizonal; tetrasporangiate conceptacles both on flattened faces and on lateral margins of intergenicula..... 10
10. Intergenicular medullary filaments straight.....BOSSIELLA, p. 153
10. Intergenicular medullary filaments flexuous and interlacing; branching dichotomous or pinnate.....CALLIARTHON, p. 157
11. Thallus parasitic on other algae, white or faintly pigmented and usually confined to a specific host species..... 12
11. Thallus not parasitic, although sometimes epiphytic; with distinct pigmentation..... 18
 12. Thallus a flattened, much-lobed, circular blade, parasitic on members of the Delesseriaceae, particularly on *Cryptopleura*.....GONIMOPHYLLUM, p. 227
 12. Thallus not a flattened, much-lobed, circular blade..... 13
13. Thallus a small pulvinate mass with radiating, pectinately branched branchlets, parasitic on *Plocamium*.....PLOCAMIOCOLAX, p. 180

13. Thallus rounded, cushion-like, or wart-like, branched or unbranched.....14
14. Thallus forming minute, smooth, whitish cushions on *Polysiphonia*.....CHOREOCOLAX, p. 173
14. Thallus tuberculate, or with short needle-like greenish-yellow branches..... 15
15. Thallus with small needle-like, greenish-yellow branches, parasitic on members of the Delesseriaceae, particularly on *Polysiphonia*.....POLYCORYNE, p. 222
15. Thallus tuberculate or wart-like..... 16
 16. Thallus with a solid basal cushion bearing short, wart-like fertile branches; with a filamentous cortex; parasitic on *Faucheia*.....FAUCHEOCOLAX, p. 193
 16. Thallus tuberculate, not parasitic on *Faucheia*..... 17
17. Thallus a pinkish cushion with tuberculate branches, parasitic on *Laurencia*.....JANCZEWSKIA, p. 241
17. Thallus forming a tuberculate outgrowth on *Callophyllis*.....CALLOCOLAX, p. 172
17. Thallus with a tightly compacted parenchymatous cortex; parasitic on *Rhodymenia*.....RHODYMENIOLAX, p. 199
18. Thallus crustaceous..... 19
18. Thallus not crustaceous..... 23
19. Thallus microscopic, usually monostromatic, epiphytic or epizoic and composed of radially branched filaments; cells with a single stellate chromatophore.....ERYTHROCLADIA, p. 125
19. Thallus small, more than one cell in thickness..... 20
 20. Thallus of overlapping lobes attached by unicellular rhizoids, monostromatic at the margins; growth marginal by means of a continuous row of apical cells; coalescent axes polysiphonous a short distance in from the apical margin.....AMPLISIPHONIA, p. 239
 20. Thallus of closely packed filaments forming a layer several cells in thickness, with or without a sharply defined hypothallium and perithallium..... 21
21. Hypothallium monostromatic and not sharply defined; perithallium composed of laterally adjoined vertical rows of cells; cruciately divided tetrasporangia terminal and borne in nemathecium; thallus at times somewhat calcified.....PEYSSONELIA, p. 147
21. Hypothallium several cells in thickness..... 22
 22. Hypothallium a horizontally expanded, radiately branched, filamentous layer; perithallium of erect densely packed filaments; tetrasporangia borne in conceptacles.....HILDENBRANDIA, p. 147
 22. Hypothallium composed of horizontal branched filaments, several cells in thickness; perithallium with erect, sometimes branched filaments separated by a gelatinous matrix; tetrasporangia intercalary and not borne in conceptacles.....PETROCELIS, p. 174
23. Thallus a simple or branched monosiphonous filament, sometimes developing a cortex in the mature parts..... 24
23. Thallus more than one cell broad, frequently organized into a complex multicellular body..... 39

24. Filaments endozoic, penetrating into empty shells and forming pink patches; cells containing a single, parietal, irregular, discoid chromatophore..... CONCHOCELIS, p. 138
24. Filaments not endozoic..... 25
25. Filaments unbranched..... 26
25. Filaments branched..... 27
26. Thallus microscopic, consisting of an unbranched filament, for the most part uniseriate but occasionally multiseriate in parts and becoming somewhat flattened; monospores formed by unequal, oblique division of a parent cell..... ERYTHROTRICHIA, p. 125
26. Thallus macroscopic, small, consisting of an unbranched filament, uniseriate at first, becoming multiseriate in older parts by a few longitudinal cell divisions; thallus fastened by intramatrical rhizoids arising from basal cells; monospores formed by complete transformation of a vegetative cell into two or more monospores..... BANGIA, p. 126
27. Thallus microscopic, consisting of a branched, uniseriate filament (occasionally multiseriate in parts); cells not touching one another but separated by thick walls and with a thick gelatinous sheath; cells with a single, stellate chromatophore; monospores produced.. GONIOTRICHUM, p. 124
27. Thallus lacking a gelatinous sheath, variously branched, sometimes corticated; cells touching and with protoplasmic continuity between adjacent cells in the filament..... 28
28. Thallus dichotomously branched, composed of large cells distinctly visible to the naked eye..... GRIFFITHSIA, p. 210
28. Thallus not with cells visible to the naked eye..... 29
29. Each cell of a branch with a whorl of six irregularly branched branchlets..... THURETELLOPSIS, p. 143
29. Cells of branches not bearing whorls of branchlets..... 30
30. Cells of major axes with opposite branches..... 31
30. Cells of major axes not with opposite branches (or rarely so)..... 33
31. Thallus profusely branched, uncorticated; each cell in the secondary axes with two opposite branchlets..... ANTITHAMNION, p. 200
31. Thallus profusely branched, uncorticated; each cell in the major axes with a verticil of three or four branchlets..... 32
32. Each verticil with all branchlets the same length (portions of the thallus at times alternately branched because of suppression of an opposite pair)..... ANTITHAMNION, p. 200
32. Each verticil with two long and two short branchlets..... PLATYTHAMNION, p. 205
33. Thallus with regular alternate branching..... 34
33. Thallus with branching predominately unilateral, subdichotomous, or irregular; sometimes with branches terminating in hairs..... 35
34. Sporangia with more than four (usually 16) polysporangia; axis and primary branches sometimes completely uncorticated or sometimes corticated nearly to the apex..... PLEONOSPORIUM, p. 208
34. Sporangia with four tetraspores; axis obscure to percurrent with major branches sometimes uncorticated or sometimes corticated nearly to the apex..... CALLITHAMNION, p. 206

35. Thallus with creeping primary axes fastened by discoid holdfasts with filamentous proliferated margins; each cell in the filament with a small hyaline glandular cell..... TRAILLIELLA, p. 200
35. Thallus microscopic to about 1 cm. high, not with each cell bearing a hyaline glandular cell; may be superficial on, or partly to wholly embedded within a host..... 36
36. Each cell containing a few to many discoid chromatophores.. RHODOCHORTON, p. 137
36. Cells not with discoid chromatophores..... 37
37. Each cell with one to a few spiral chromatophores..... AUDOUINELLA, p. 138
37. Cells not with spiral chromatophores..... 38
38. Each cell with one or rarely more than one stellate chromatophore.. KYLINIA, p. 136
38. Each cell with a single parietal or laminate chromatophore, which in a few species divides into several..... ACROCHAETIUM, p. 133
39. Thallus, when mature, with cells segmentally arranged in conspicuous and regular transverse series (polysiphonous), sometimes somewhat obscured in older parts by the development of a cortex and sometimes with terminal branches remaining monosiphonous..... 40
39. Thallus, when mature, not with cells in conspicuous regular transverse series (not polysiphonous)..... 46
40. Branches cylindrical and arising along several radii..... 41
40. Branches more or less flattened and all lying in one plane.. 42
41. Thallus with an indeterminate prostrate system of branches from which erect determinate, branched or unbranched branches arise on the dorsal surface, and unicellular rhizoids on the ventral surface; trichoblasts lacking; four pericentral cells in each segment..... LOPHOSIPHONIA, p. 234
41. Thallus wholly or partially erect, with erect branches indeterminate and radially branched, with four to twenty-four pericentral cells in each segment; older portions in some species corticated; trichoblasts and scar cells usually present..... POLYSIPHONIA, p. 229
42. Marginal cells of branches half as long as pericentral cells present in the segments of the flattened branches; four pericentral cells in each segment always cutting off a pair of short corticating cells..... PLATYSIPHONIA, p. 220
42. Marginal cells not present, or if present the same length as the other cells in the segment..... 43
43. Thallus with polysiphonous branches throughout (exclusive of trichoblasts)..... 44
43. Thallus with branches arising distichously along each side of the major axes and terminating in monosiphonous filaments... HETEROSIPHONIA, p. 228
44. Thallus with a percurrent axis, along which each segment bears either a simple branch, or a compound branch similar to the axis; simple and compound branches in a regular sequence with three simple branches between successive compound branches; branching distichous..... HERPOSIPHONIA, p. 238
44. Thallus not with regular distribution of three simple branches between successive compound branches..... 45

45. Thallus distichously branched with a percurrent axis and with branches regularly alternating, cylindrical to markedly compressed with four to twenty pericentral cells in each segment, sometimes corticated in mature parts.....PTEROSIPHONIA, p. 235
45. Thallus without a percurrent axis; alternately and laxly branched; branches compressed; lacking cortication.....PTEROCHONDRIA, p. 237
46. Thallus with main axes terete or cylindrical, sometimes slightly flattened, branched or unbranched..... 47
46. Thallus neither terete nor cylindrical nor a slightly flattened cylinder (sometimes markedly flattened and blade-like)... 87
47. Thallus unbranched..... 48
47. Thallus branched..... 51
48. Thallus solid, not a hollow sac..... 49
48. Thallus hollow and very much inflated, usually simple but occasionally with proliferous branches; surface with numerous fine pores opening into the sac; intertidal.....HALOSACCION, p. 194
49. Thallus soft and slippery, composed of a solid mass of branched filaments, with those in the centre arranged in a more or less distinct, compact medulla of longitudinal filaments.....NEMALION, p. 139
49. Thallus not composed of a solid mass of branched filaments and not with a compact medulla of parallel filaments..... 50
50. Thallus microscopic, consisting of an unbranched filament, for the most part uniseriate but occasionally multiseriate in parts and becoming somewhat flattened; monospores formed by unequal oblique division of a parent cell.....ERYTHROTRICHIA, p. 125
50. Thallus macroscopic, small, consisting of an unbranched filament, uniseriate at first, becoming multiseriate in older parts by a few longitudinal cell divisions; thallus fastened by intramatrical rhizoids arising from basal cells; monospores formed by complete transformation of a vegetative cell into two or more monospores.....BANGIA, p. 126
51. Thallus microscopic, consisting of a branched, uniseriate filament (occasionally multiseriate in parts); cells not touching one another but separated by thick walls and with a thick gelatinous sheath; cells with a single, stellate chromatophore; monospores produced.. GONIOTRICHUM, p. 124
51. Thallus macroscopic..... 52
52. Thallus with main axes repeatedly branched and bearing transverse whorls of short simple branchlets; gelatinous in texture.....GLOIOSIPHONIA, p. 158
52. Thallus not with whorls of branchlets..... 53
53. Thallus more or less dichotomously branched..... 54
53. Thallus not dichotomously branched..... 59
54. Thallus, except when young, with erect solidly parenchymatous, terete branches, each branch terminating in a large, hollow, somewhat elongated vesicle containing a slimy secretion; subtidal.....BOTRYOCLADIA, p. 194
54. Thallus branches without vesiculate tips..... 55
55. Branches of thallus with forcipate tips and having a uniseriate axis of large cells covered at regular intervals with bands of small cortical cells (occasionally forming a continuous layer).....CERAMUM, p. 210

55. Branches of thallus without cortical bands 56
56. Thallus not more than about 4 cm. tall; growing on rocks at extreme high-tide level; branching limited to one or two dichotomies; somewhat gelatinous when wet; ultimate branches not forcipate; medulla with a single axial filament..... GLOIOPELTIS, p. 160
56. Thallus below extreme high-tide level; medulla not with a single axial filament..... 57
57. Medulla of parallel or intertwined colourless filaments..... 58
57. Thallus constricted at intervals, hollow, with transverse septae; major branches bearing numerous short branchlets..... GASTROCLONIUM, p. 199
58. Thallus wiry in texture; medulla of narrow, parallel longitudinal filaments..... AHNFELTIA, p. 182
58. Thallus texture soft and gelatinous; medulla of colourless intertwined filaments..... GLOIOPHLOEA, p. 139
59. Thallus constricted at regular intervals, hollow, with transverse septae; major branches bearing numerous short branchlets... GASTROCLONIUM, p. 199
59. Thallus not hollow and not transversely septate..... 60
60. Thallus more or less profusely branched..... 66
60. Thallus with a few major axes, sometimes giving rise to a few to numerous short branches..... 61
61. Thallus soft and slippery, composed of a solid mass of branched filaments with those in the centre arranged in a more or less distinct, compact medulla of longitudinal filaments..... NEMALION, p. 139
61. Thallus cylindrical to flattened, branched; medulla not a solid mass of branched filaments; cortex a compact layer of small-celled filaments..... 62
62. Thallus with terete branches, usually more than 2 mm. in diameter, irregularly branched from a more or less percurrent axis; medulla of very large cells..... 65
62. Thallus not with a percurrent axis; medulla not with large cells only (although may have large cells mixed with narrow filaments)... 63
63. Thallus somewhat bushy and flattened, branches not more than 2 mm. wide; medulla with mostly large, roundish cells mixed with some slender, branched filaments..... EUTHORA, p. 178
63. Medulla with a single axial filament or a loose system of longitudinal filaments..... 64
64. Thallus soft and gelatinous, with a few main axes densely clothed on all sides with short branchlets of much smaller diameter than the main axes; medulla a loose system of intertwined, colourless longitudinal filaments..... CUMAGLOIA, p. 139
64. Thallus firm and rigid, branched into progressively smaller branches, without a percurrent axis; major branches long, of same diameter throughout and bearing many short branchlets (less than 1 cm.) of approximately the same length, branches with rounded apices; medulla very loosely organized with a single axial filament from each cell of which two branches arise at right angles..... CRYPTOSIPHONIA, p. 142
65. Antheridia borne at the surface in small, non-confluent pits about as broad as deep; cystocarps with a large-celled, small-based gonimoblast, in which the carpospores are nourished through nutritive filaments extending into the pericarp..... GRACILARIA, p. 181

65. Antheridia borne in a continuous layer over the entire surface of the thallus; cystocarps with a small-celled, broad-based gonimoblast in which there are no nutritive filaments connecting it to the pericarp.....GRACILARIOPSIS, p. 181
66. Thallus with major axes bearing progressively shorter branches... 75
66. Thallus with major axes bearing numerous short branchlets all about the same length..... 67
67. Numerous short branchlets arranged distichously..... 68
67. Numerous short branchlets not arranged distichously..... 71
68. Thallus alternately branched, with major axes somewhat flattened, branchlets terminating in monosiphonous filaments.....DASYOPSIS, p. 227
68. Thallus branchlets not terminating in monosiphonous filaments... 69
69. Thallus pinnately branched in a subopposite fashion with two branches of a pair similar and with or without a percurrent axis; major axes frequently somewhat compressed; medulla with a conspicuous single axial filament surrounded by intertwined rhizoidal filaments.....PIKEA, p. 143
69. Thallus distichously branched with two branches of a pair dissimilar... 70
70. One of each pair of branches much longer than the opposite branch, markedly compressed and resembling minute leaflets in the ultimate branches.....PTILOTA, p. 215
70. One of each pair of branches short and spine-like, the other long and with one or more orders of branchlets, branches cylindrical or very slightly compressedBONNEMAISONIA, p. 140
71. Thallus with short branchlets irregularly arranged, sometimes with forcipate tips, not polysiphonous in organization..... 72
71. Thallus with short branchlets, spirally arranged, polysiphonous in organization, though frequently obscured by a well-developed cortex developing from the pericentral cells..... 74
72. Branches with a compact pseudoparenchymatous medulla composed of large cells..... 65
72. Branches with a uniseriate axis or a filamentous medulla.... 73
73. Thallus soft and gelatinous, with a few major axes densely clothed on all sides with short branchlets of much smaller diameter than the main axes; medulla a loose system of colourless, intertwined longitudinal filaments.....CUMAGLOIA, p. 139
73. Thallus with several orders of branches, branches with forcipate tips; with a uniseriate axial filament of large cells covered at regular intervals with bands of small cortical cells (occasionally forming a continuous layer).....CERAMUM, p. 210
74. Thallus cylindrical to slightly compressed, branching radial, with a few long major axes from which arise numerous short branchlets, apices of branchlets rounded.....RHODOMELA, p. 241
74. Thallus with several orders of branches alternately arranged, cylindrical usually only near the base, compressed somewhat above (in some species markedly flattened and distichous), with or without a midrib, apices of branches acutely pointed.....ODONTHALIA, p. 242
75. Thallus with unilateral or pectinate branching in the ultimate branches..... 76

75. Thallus neither with unilateral nor pectinate branching. 77
76. Thallus with compressed branches, branching distichous and repeatedly pectinate with unilateral branches generally incurved toward the apex of the branch. PLOCAMUM, p. 179
76. Thallus cylindrical to slightly compressed, branching distichous with unilateral branches generally curved away from the apex of the branch; branch tips somewhat forcipate. MICROCLADIA, p. 213
77. Branches of thallus with forcipate tips, with a uniseriate axial filament of large cells covered at regular intervals with bands of small cortical cells (occasionally forming a continuous layer). CERAMUM, p. 210
77. Branches of the thallus without forcipate tips and without cortical bands. 78
78. Thallus distichously branched. 79
78. Thallus not distichously branched. 82
79. Thallus with two branches of a pair dissimilar. 80
79. Thallus with two branches of a pair similar. 81
80. One of each pair of branches much longer than the opposite branch, branches markedly compressed and resembling minute leaflets in ultimate branches. PTILOTA, p. 215
80. One of each pair of branches short and spine-like, the other long and with one or more orders of branchlets, branches cylindrical or very slightly compressed. BONNEMAISONIA, p. 140
81. Thallus cartilaginous or wiry in texture, cylindrical or flattened; pinnately branched, branchlets alternate or opposite, branchlets constricted at the base and geniculate. GELIDIUM, p. 141
81. Thallus not cartilaginous, branchlets not geniculate and not constricted at the base; branchlets generally curved away from the apex of the branch, branch tips somewhat forcipate. MICROCLADIA, p. 213
82. Thallus profusely branched, all major axes covered with dense spine-like branchlets. ENDOCLADIA, p. 160
82. Thallus with smooth branches. 83
83. Thallus somewhat bushy and flattened, branches not more than 1 mm. wide; medulla with mostly large roundish cells mixed with some slender branched filaments. EUTHORA, p. 178
83. Thallus not flattened; medulla not with large and small cells mixed. 84
84. Branches of thallus with a compact medulla of intertwined filaments, or a single axial filament with two branches arising from each axial cell. 86
84. Branches of thallus with a compact medulla of large cells. . . . 85
85. Antheridia borne at the surface in small, non-confluent pits about as broad as deep; cystocarps with a large-celled, small-based gonimoblast, in which the carpospores are nourished through nutritive filaments extending into the pericarp. GRACILARIA, p. 181
85. Antheridia borne in a continuous layer over the entire surface of the thallus; cystocarp with a small-celled, broad-based gonimoblast in which there are no nutritive filaments connecting it to the pericarp. GRACILARIOPSIS, p. 181

86. Branches of thallus with acutely pointed apices, branchlets more than 5 cm. long and repeatedly branched; medulla of narrow parallel intertwined filaments..... AGARDHIELLA, p. 176
86. Thallus firm and rigid, branched into progressively smaller branches, without a percurrent axis, major axes long, of same diameter throughout and bearing many short branchlets (less than 1 cm.) of approximately the same length; branches with rounded apices; medulla very loosely organized with a single axial filament from each cell of which two branches arise at right angles..... CRYPTOSIPHONIA, p. 142
87. Thallus an unbranched blade at maturity, monostromatic or distromatic, flattened, without protoplasmic continuity between adjacent cells and without veins or midribs..... 88
87. Thallus several to many cells in thickness with protoplasmic continuity between adjacent cells; branched or unbranched, with or without a midrib or veins..... 90
88. Thallus saccate when young, later splitting to form an undulate, monostromatic blade, less than 4 cm. high; cells with a single parietal, lobed chromatophore; monospores formed by oblique division of a vegetative cell..... PORPHYROPSIS, p. 133
88. Thallus a monostromatic or distromatic blade throughout its development..... 89
89. Thallus monostromatic or distromatic, frequently large and quite broad, arising from a discoid holdfast of rhizoids or a multicellular cushion-like base; cells with one or two stellate chromatophores; carpospores formed in packets of four to thirty-two..... PORPHYRA, p. 127
89. Thallus monostromatic, less than 4 cm. high, stipitate, with one to several blades arising from a discoid base; base and stipe composed of rhizoidal filaments; epiphytic on *Laminaria* and *Egregia*; cells with a single stellate chromatophore; not forming carpospores in packets of four to thirty-two..... PORPHYRELLA, p. 132
90. Thallus a single undivided (sometimes lacerated) blade, though in some instances with small proliferous blades from the margin or surface, sessile or with a distinct stipe..... 122
90. Thallus distinctly flattened, more or less divided and in some instances regularly branched..... 91
91. Thallus consisting of one or more large, perfoliate, horizontal, circular blades which terminate the tips of a simple or dichotomously branched stipe; blades frequently lacerated into several segments; medulla with longitudinal filaments..... CONSTANTINEA, p. 146
91. Thallus not with perfoliate, horizontal blades..... 92
92. Thallus thick and cartilaginous, blood-red in colour, with a small, undivided, rounded, smooth, stipitate, flattened primary blade giving rise to proliferous stipitate blades of the same size or larger from the margin of the primary blade; medulla of interwoven filaments; cortex of small cells with numerous large gland cells near the surface..... OPUNTIELLA, p. 177
92. Thallus not with a thick primary blade bearing proliferous blades from the margin..... 93
93. Thallus more or less dichotomously divided in main axes; sometimes appearing flabellately divided when mature (in ultimate branches sometimes producing proliferous branchlets)..... 94

93. Thallus not dichotomously divided.....105
94. Thallus, when mature, with numerous papillate outgrowths scattered over the surfaces of the branches; medulla of interwoven colourless filaments.....GIGARTINA, p. 184
94. Thallus, when mature, lacking papillate outgrowths..... 95
95. Thallus thin, slightly branched below from a stout, stipitate base; surface with numerous small, thin, leaf-like proliferations bearing tetrasporangia.....HOLMESIA, p. 219
95. Thallus surface without leaf-like proliferations..... 96
96. Basal portion of thallus a cylindrical rhizome; medulla of large cubical cells.....RHODYMENIA, p. 195
96. Basal portion of thallus not a cylindrical rhizome..... 97
97. Upper dichotomies much narrower than lower ones..... 98
97. All dichotomies flat and about the same width.....100
98. Thallus flabellately divided; medulla two to three cells thick, composed of large cells only.....FAUCHEA, p. 192
98. Medulla composed of a mixture of large cells and small cells, or entirely filamentous..... 99
99. Medulla composed of a mixture of large cells and small cells and with filaments forming diaphragms; gland cells in the medulla.....FRYEELLA, p. 193
99. Medulla composed of slender filaments only.....WHIDBEYELLA, p. 140
100. Medulla containing large cells (in some instances mixed with small cells).....101
100. Medulla composed of intertwined longitudinal filaments..103
101. Medulla containing only large cells.....102
101. Medulla containing large and small cells intermingled; thallus bright red, frequently divided into progressively smaller, narrower segments.....CALLOPHYLLIS, p. 168
102. Medulla composed of angular cells, thallus thick and horny in texture, dark, frequently almost black in colour.....GYMNOGONGRUS, p. 183
102. Medulla composed of large cubical cells; thallus dichotomously branched into linear segments, with blunt tips, bright red and thin.....STENOGRAMME, p. 184
103. Thallus with branching restricted to two or three major dichotomies, bright red, very thick and rigid, usually subtidal...SARCODIOTHECA, p. 177
103. Thallus more or less extensively branched.....104
104. Thallus repeatedly and regularly branched into several orders of branching, progressively narrower from base to apex; branches with blunt apices; texture somewhat rubbery.....RHODOGLOSSUM, p. 189
104. Thallus with major branches approximately the same width throughout; ultimate branches frequently with numerous proliferous, marginal distichously arranged pinnate branchlets; often in tide pools; generally slippery.....PRIONITIS, p. 164

105. Branching pinnate; branch tips blunt, terminating in a small depression containing a single apical cell; evanescent trichoblasts formed at apices; cartilaginous in texture.....LAURENCIA, p. 240
105. Branching not pinnate.....106
106. Flattened portion of thallus with a midrib or veins or both.....107
106. Flattened portion of thallus with neither midrib nor veins.....117
107. Thallus with a percurrent midrib.....108
107. Midrib, when present, not extending to the thallus apex...113
108. Thallus with conspicuous forked veins diagonal to the midrib; medulla of longitudinal filaments; cortex of progressively smaller, rounded cells toward the surface.....ERYTHROPHYLLUM, p. 173
108. Thallus not with filamentous medulla; usually with monostromatic portions lateral to the midrib.....109
109. Thallus with proliferous blades arising from the midrib.....DELESSERIA, p. 220
109. Thallus usually without proliferous blades arising from the midrib.....110
110. Thallus without veins arising from midrib, more than one cell in thickness at the margin; margins with spine-like teeth.....NIENBURGIA, p. 222
110. Thallus without spine-like teeth on the margins, one cell in thickness at the margin.....111
111. Primary and secondary filaments arising from the axial filament extending to the thallus margin; margin with triangular cells at regular intervals; tetrasporangia in interrupted sori on either side of the midrib.....BRANCHIOGLOSSUM, p. 217
111. Only the primary filaments extending to the thallus margin; margin without triangular cells at regular intervals; thallus alternately, subdichotomously or irregularly branched...112
112. With or without delicate veins from the midrib; thallus alternately or subdichotomously branched (occasionally with small proliferous blades from the midrib); tetrasporangia in sori in narrow bands along either side of midrib.....MEMBRANOPTERA, p. 218
112. With neither macroscopic nor microscopic veins from the midrib; thallus irregularly branched with new branches developing at margins of old blades; tetrasporangia in linear sori just within and parallel to the margins.....ERYTHROGLOSSUM, p. 221
113. Thallus without a midrib; with a network of somewhat emergent, conspicuous, anastomosing veins.....POLYNEURA, p. 221
113. Thallus with a midrib evident in the lower portion only, in some instances giving way above to a network of progressively narrower veins.....114

114. Main axis and branches of thallus narrow, less than 1 cm. wide, frequently somewhat cylindrical near the base; all branches bearing distichously and alternately arranged short dentate branchlets; each cell of axial filament surrounded by four pericentral cells which soon become heavily corticated; tetrasporangia produced in stichidium-like branchlets. ODONTHALIA, p. 242
114. Main axis and branches of thallus, thin, broad, usually more than 1 cm. wide, frequently with microscopic veins, and usually flabellately divided. 115
115. Margins of thallus with numerous semicircular proliferations; tetrasporangia borne on the proliferous outgrowths. BOTRYOGLOSSUM, p. 226
115. Margins of thallus usually without semicircular proliferations. . . 116
116. Tetrasporangia in linear or elliptical sori scattered over the entire blade. HYMENENA, p. 224
116. Tetrasporangia in sori only along the margins of the branches, or sometimes in small proliferations from the margins. CRYPTOPLEURA, p. 225
117. Thallus markedly flat, broad and thin with a lobed margin, sometimes deeply lacerated, monostromatic in upper portions at least; never with a filamentous medulla. 118
117. Thallus several cells in thickness, usually with a distinct cortex and medulla, or polysiphonous. 119
118. Carposporangia in chains. MYRIOGRAMME, p. 223
118. Carposporangia not in chains. NITOPHYLLUM, p. 223
119. Thallus axis and branches usually less than 15 mm. broad; profusely branched, sometimes with a more or less conspicuous midrib near the base. 120
119. Branches of thallus usually more than 15 mm. broad in widest parts. 121
120. Thallus with short dentate branchlets, polysiphonous, with four pericentral cells in each segment; dense cortex; tetrasporangia produced in stichidium-like branchlets. ODONTHALIA, p. 242
120. Thallus distichously branched with branches progressively smaller from base to apex, slippery in texture; medulla with a single axial filament surrounded by numerous rhizoidal filaments. FARLOWIA, p. 144
121. Thallus usually somewhat flaccid and gelatinous in texture, dull red to brown in colour, slightly branched, branches longer than broad; frequently with numerous proliferous bladelets from the margins; medulla of colourless stellate cells with long filamentous processes. GRATELOUPIA, p. 161
121. Thallus surface somewhat rough to touch, thin in newer blades, cartilaginous in narrower, older parts; branching confined to a few large proliferous blades from a primary blade, medulla composed of very dense, loosely compacted fine filaments; cortex of small cells with a rapid transition to very small cells at the surface. . . . CRYPTONEMIA, p. 162
122. Thallus, when mature, perforated; medulla of large cubical cells. RHODYMENIA, p. 195

122. Thallus not normally perforated.....123
123. Cortex with gland cells.....124
123. Cortex without gland cells.....126
124. Thallus thick and cartilaginous, blood red in colour, with a small undivided, rounded, smooth, primary blade, frequently producing proliferous rounded stipitate bladelets the same size or larger from the margin of the primary blade.....OPUNTIEELA, p. 177
124. Thallus thin to membranous, slippery or gelatinous.....125
125. Thallus very slippery, brownish-red in colour; cystocarps deeply embedded in a medulla of interwoven colourless filaments.....SCHIZYMENIA, p. 174
125. Thallus gelatinous to membranous; cystocarps immersed near the surface.....TURNERELLA, p. 175
126. Many medullary filaments running perpendicularly or somewhat obliquely from cortex to cortex.....HALYMENIA, p. 164
126. Few medullary filaments, when present, running perpendicularly from cortex to cortex.....127
127. Surface of blade at maturity with outgrowths.....128
127. Surface of blade at maturity without outgrowths.....129
128. Surface of blade with numerous stout, papillate outgrowths; medulla of interwoven filaments.....GIGARTINA, p. 184
128. Surface of blade with numerous small, thin, leaf-like proliferations; thallus thin.....HOLMESIA, p. 219
129. Thallus with a midrib or veins.....130
129. Thallus with neither a midrib nor veins.....132
130. Thallus with a pronounced percurrent midrib.....ERYTHROPHYLLUM, p. 173
130. Thallus without a pronounced percurrent midrib.....131
131. Thallus with a network of somewhat emergent, anastomosing veins over the whole of the thin membranous blade.....POLYNEURA, p. 221
131. Base of blade with faint veins; thallus thick and fleshy; medulla of interwoven colourless filaments.....WEEKSIA, p. 145
132. Thallus thin, one cell in thickness with a lobed margin, sometimes deeply lacerated.....133
132. Thallus more than one cell in thickness at the margin, usually with a well-developed cortex and medulla.....134
133. Carposporangia in chains.....MYRIOGRAMME, p. 223
133. Carposporangia not in chains.....NITOPHYLLUM, p. 223
134. Thallus somewhat flaccid and gelatinous in texture, dull red to brown in colour, frequently with numerous proliferous blades from the margins; medulla of colourless stellate cells with long filamentous processes.....GRATELOUPIA, p. 161
134. Thallus not gelatinous in texture and usually without proliferous blades from the margin.....135

135. Thallus very thick, rigid, long and narrow, occasionally dichotomously branched, usually bright red and subtidal; medulla of long intertwined filaments.....SARCODIOTHECA, p. 177
135. Thallus not thick and rigid, often quite thin, sometimes fleshy or membranous or somewhat brittle.....136
136. Thallus narrow at the base broad and rounded at the apex, brownish black in colour; spermatangia and tetrasporangia in chains at the surface; medulla of dense intertwined filaments; cortex thick, composed of large cells next to the medulla and smaller cells toward the surface.....DILSEA, p. 145
136. Thallus not with spermatangia and tetrasporangia in chains; bright red, purplish to black in colour and sometimes iridescent.....137
137. Medulla filamentous.....139
137. Medulla of large and small cells mixed.....138
138. Thallus an expanded, peltate blade; plant small, growing in the lower intertidal zone; cortex several cells in thickness...CALLOPHYLLIS, p. 168
138. Thallus an expanded, peltate blade, growing usually in the subtidal zone; cortex one or two cells in thickness.....PUGETIA, p. 167
139. Thallus fairly thick and tough, usually iridescent with a pronounced, somewhat cylindrical to flattened stipe; tetrasporangia developing between medullary filaments.....IRIDAEA, p. 190
139. Thallus thin and somewhat membranous, not iridescent, very indistinctly stipitate.....140
140. Thallus small, purplish and usually in the intertidal zone; tetrasporangia developing from innermost cortical cells...RHODOGLOSSUM, p. 189
140. Thallus large, distinctly red or pink, usually subtidal.....141
141. Thallus thin and fragile; cortex of small cells in vertical rows four to ten cells deep; medulla filamentous with loosely interwoven filaments tending to run parallel to the surface.....AEODES, p. 163
141. Cortex three or four cells in thickness.....142
142. All cells in the cortex small, with a rapid transition to very small surface cells; medulla composed of very dense, loosely compacted, stellate cells with fine filamentous processes; surface of thallus somewhat rough in texture.....CRYPTONEMIA, p. 162
142. Two outer rounded cell rows in cortex smaller than inner polygonal cells; medulla of coarse intertwined compacted filaments; thallus sometimes lobed.....KALLYMENIA, p. 166

KEY TO THE GENERA OF THE PHYLUM CHRYSOPHYCOPHYTA (2)

1. Plants generally endozoic, consisting of much-branched, anastomosing, coenocytic filaments of irregular form and variable diameter; ends of branches swollen and lobed; reproducing by aplanospores...OSTREOBIMUM, p. 246
1. Plants not endozoic, consisting of branched coenocytic filaments, fairly regular in diameter throughout; oogamous sexual reproduction; producing multiflagellate zoospores.....VAUCHERIA, p. 246

ANNOTATED LISTS

Phylum 1. **CHLOROPHYCOPHYTA**
(GREEN ALGAE)Class 1. **CHLOROPHYCEAE**Order 1. **VOLVOCALES**Suborder 1. **VOLVOCINEAE**Family 1. **POLYBLEPHARIDACEAE****Stephanoptera gracilis** (Artari) G. M. Smith, 1933: 308.*References.*Artari, 1913, p. 455 (as *Asteromonas gracilis*).

Smith, 1933, p. 308; 1944, p. 27; 1950, p. 68.

Distribution.

Pacific Coast: Northern Washington to Monterey, California.

Local: Washington: San Juan I.

New Records.

Washington: South of False Bay, 26 August 1954 (RFS 207L).

Goose I., 7 August 1956 (RFS 210L).

Habitat.

In spray pools near high-tide mark.

Dunaliella salina (Dunal) Teodoresco, 1905: 230.*References.*

Teodoresco, 1905, p. 230.

Smith, 1933, p. 309; 1944, p. 28; 1950, p. 70.

Distribution.

Pacific Coast: Northern Washington to Monterey, California.

New Records.

Washington: Friday Harbor, 15 August 1956 (RFS 209L).

Habitat.

In spray pools near high-tide mark.

Suborder 2. **CHLORODENDRINEAE**Family 1. **CHLORANGIACEAE****Collinsiella tuberculata** Setchell and Gardner, 1903: 204.*References.*

Setchell and Gardner, 1903, p. 204; 1920b, p. 144.

Yendo, 1903, p. 199 (as *Ecballocystis willeana*).

References—Concluded

- Collins, 1909b, p. 141; 1913, p. 101.
 Smith, 1944, p. 31.
 Doty, 1947a, p. 5.

Distribution.

Pacific Coast: Southern British Columbia to Pacific Grove, California.

Local: British Columbia: Port Renfrew (UC 763712).

Washington: Whidbey I. (UC 97694); Waldron I. (UC 571406).

Habitat.

On stones in pools in the middle intertidal zone.

Prasinocladus lubricus* Kuckuck, 1894; 261.References.*

- Kuckuck, 1894, p. 261.
 Smith, 1933, p. 366; 1944, p. 32; 1950, p. 130.

Distribution.

Pacific Coast: Friday Harbor, Washington, to Monterey, California.

Local: Washington: Friday Harbor, 30 July 1956 (RFS 211L)

Habitat.

On cement tanks and aquaria in seawater system at Friday Harbor Laboratories.

Order 2. **ULOTRICHAELES**Family 1. **ULOTRICHACEAE*****Ulothrix flacca* (Dillwyn) Thuret, *in* LeJolis, 1863: 56.***References.*

- LeJolis, 1863, p. 56.
 Saunders, 1901b, p. 417.
 Setchell and Gardner, 1903, p. 217; 1920b, p. 284.
 Collins, 1909b, p. 185.
 Sanborn and Doty, 1947, p. 19.
 Doty, 1947a, p. 5.

Distribution.

Pacific Coast: St. Michael, Alaska, to California.

Local: Washington: Fairhaven (UC 98425).

Habitat.

On other algae, rocks, and wood in the intertidal zone.

Ulothrix implexa Kützinger, 1849: 349.*References.*

- Kützinger, 1849, p. 349.
 Setchell and Gardner, 1903, p. 217; 1920b, p. 283.
 Collins, 1909b, p. 185.
 Smith, 1944, p. 34.
 Doty, 1947a, p. 5.

Distribution.

- Pacific Coast: Bering Sea to Monterey, California.
 Local: Washington: Orcas I. (UC 98428).

Habitat.

- On rocks in the intertidal zone near the mouths of streams.

Ulothrix laetevirens (Kützinger) Collins, 1909b: 186.*References.*

- Collins, 1909b, p. 186.
 Setchell and Gardner, 1920b, p. 286.

Distribution.

- Pacific Coast: Unalaska I., Alaska, to California.

Habitat.

- On old wood in the intertidal zone.

Family 2. CHAETOPHORACEAE

Entocladia viridis Reinke, 1879: 476.*References.*

- Reinke, 1879, p. 476.
 Collins, 1909b, p. 279 (as *Endoderma viride*); 1913, p. 103 (as *Endoderma viridis*).
 Setchell and Gardner, 1920b, p. 289.
 Smith, 1944, p. 35.

Distribution.

- Pacific Coast: Southern British Columbia to Monterey, California.
 Local: British Columbia: Vancouver Island.

Habitat.

- Endophytic in *Delesseria decipiens* and other algae in the lower intertidal and subtidal zones.

Phaeophila polymorpha Jao, 1937: 100.*References.*

- Jao, 1937, p. 100.

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Argyle Lagoon.

Habitat.

In empty shells in the intertidal zone.

Internoretia fryeana Setchell and Gardner, 1920a: 295.

References.

Setchell and Gardner, 1920a, p. 295; 1920b, p. 294.

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Friday Harbor (UC 314961).

Habitat.

Endophytic in *Porphyra naiadum*.

Family 3. MONOSTROMACEAE

Monostroma fractum Jao, 1937: 102.

References.

Jao, 1937, p. 102.

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Turn I.

Habitat.

Floating in shallow water on mud flats in the intertidal zone.

Monostroma fuscum var. **blyttii** (Areschoug) Collins, 1903: 12.

References.

Collins, 1903, p. 12; 1909b, p. 211; 1913, p. 102.
Setchell and Gardner, 1920b, p. 243.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.
Local: British Columbia: Port Renfrew.
Washington: Whidbey I.

New Records.

British Columbia: Sooke (UC 463970).
Washington: Port Townsend, July 1917 (UW 64265; UC 402068; 205677); Friday Harbor (UC 392853).

Habitat.

On pebbles and in tide pools in the lower intertidal zone.

Monostroma fuscum (Postels and Ruprecht) Wittrock f. **fuscum**, 1866: 53.

References.

- Wittrock, 1866, p. 53 (as *M. fuscum*).
Collins, 1909b, p. 213 (as *M. fuscum*).
Setchell and Gardner, 1903, p. 208 (as *M. fuscum*); 1920b, p. 242 (as *M. fuscum*).

Distribution.

Pacific Coast: Kukak B., Alaska, to Northern Washington.
Local: Washington: Whidbey I.; Puget Sound.

New Records.

- British Columbia: Sidney, 1915 (V 1382).
Beacon Hill, July 1913 (CAN 497).
Washington: Upright Head, 29 June 1904 (UW 64753).
Friday Harbor (UC 276872). Argyle Lagoon (UC 276871, 276873). Kanaka B., 26 July 1904 (UW 64751-2).
Sucia Is., 16 July 1904 (UC 98068).

Habitat.

On stones in the middle intertidal zone or floating in brackish water.

Monostroma fuscum var. **splendens** (Ruprecht) Rosenvinge, 1893: 940.

References.

- Rosenvinge, 1893, p. 940.
Saunders, 1901b, p. 409 (as *M. splendens*).
Collins, 1903, p. 12; 1909b, p. 213; 1913, p. 102.
Setchell and Gardner, 1903, p. 209; 1920b, p. 242.

Distribution.

Pacific Coast: St. Paul I., Alaska, to Southern British Columbia.
Local: British Columbia: Victoria; Quatsino Sound (UC 463968).
Washington: Whidbey I. (UC 98062). Idlewild (UC 763679).

Habitat.

On stones in the middle intertidal zone.

Monostroma oxyspermum (Kützinger) Doty, 1947a: 12.

References.

- Desmazières, 1859, p. 603 (as *M. quaternarium*).
Wittrock, 1866, p. 33 (as *M. latissimum*).
Setchell and Gardner, 1903, p. 207 (as *M. latissimum* and *M. quaternarium*); 1920b, p. 240 (as *M. quaternarium*), p. 241 (as *M. latissimum*).

References—Concluded

Collins, 1909b, p. 211 (as *M. latissimum*), p. 212 (as *M. quaternarium*); 1913, p. 102 (as *M. latissimum*).

Doty, 1947a, p. 12.

Distribution.

Pacific Coast: Southern British Columbia to Southern California.

Local: British Columbia: Ucluelet (CAN 243, 1110); Colquitz R. (V 1383; CAN 411).

Washington: LaConner (UC 98110); Whidbey I. (UC 98123).

New Records.

British Columbia: Departure B., 26 June 1908 (CAN 525).

Habitat.

On stones and shells (or floating) in the lower intertidal zone.

Monostroma zostericola* Tilden, 1900: 388 (IV).References.*

Tilden, 1900, p. 388 (IV).

Setchell and Gardner, 1903, p. 209 (as *M. leptodermum*); 1920b, p. 238.

Collins, 1903, p. 15 (as *M. leptodermum*); 1909b, p. 213 (as *M. leptodermum*); 1913, p. 103 (as *M. leptodermum*).

Smith, 1944, p. 43.

Sanborn and Doty, 1947, p. 24.

Doty, 1947a, p. 11.

Distribution.

Pacific Coast: Southern British Columbia to Monterey, California.

Local: British Columbia: Port Renfrew; Victoria (UC 402070, 205676).

Washington: Brown I.; San Juan I.; Waadah I.; Puget Sound.

New Records.

British Columbia: Beacon Hill, 1913 (V 1381). Sidney, 1913 (CAN 432). Ucluelet, 15 June 1909 (CAN 524).

Washington: Waadah I., 15 July 1954 (RFS 169L). Goose I., 3 July 1952 (RFS 77L).

Habitat.

Epiphytic on leaves of *Zostera* and *Phyllospadix*.

Blidingia minima* (Nägeli) Kylin var. *minima*, 1947: 8.References.*

Kützinger, 1849, p. 482; 1856, p. 11 (as *Enteromorpha micrococca*).

References—Concluded

- Setchell and Gardner, 1903, p. 213; 1920b, p. 249 (as *Enteromorpha micrococca*), p. 250.
 Collins, 1909b, p. 204 (as *Enteromorpha micrococca*), p. 201 (as *Enteromorpha minima*); 1913, p. 102 (as *Enteromorpha minima* and *Enteromorpha micrococca*).
 Smith, 1944, p. 50 (also as *Enteromorpha micrococca*).
 Sanborn and Doty, 1947, p. 24 (also as *Enteromorpha micrococca*).
 Doty, 1947a, p. 17 (as *Enteromorpha minima*); 1948, p. 257 (as *B. minima*).
 Kylin, 1947a, p. 8 (as *B. minima*).

Distribution.

- Pacific Coast: Dutch Harbor, Alaska, to Mexico.
 Local: British Columbia: Ucluelet (CAN 545); Port Renfrew; Esquimalt (V 1378; CAN 475, 1549); Departure B. (CAN 509, 479, 1206, 546, 1553).
 Washington: San Juan I. (UC 97900).

New Records.

- British Columbia: Sidney, 12 September 1917 (CAN 501); 26 September 1917 (CAN 521). Mayne I., June 1914 (V 1363). Victoria, 5 June 1908 (V 1379; CAN 544).

Habitat.

On rocks and old wood in the upper intertidal zone.

Blidingia minima* var. *subsalsa* (Kjellman) Scagel, comb. nov.References.*

- Kjellman, 1883, p. 292 (as *Enteromorpha micrococca* f. *subsalsa*)
 Setchell and Gardner, 1903, p. 211 (as *Enteromorpha micrococca* f. *subsalsa*); 1920b, p. 249 (as *Enteromorpha micrococca* f. *subsalsa*).
 Collins, 1909b, p. 204 (as *Enteromorpha micrococca* f. *subsalsa*); 1913, p. 102 (as *Enteromorpha micrococca* f. *subsalsa*).
 Doty, 1947a, p. 17 (as *Enteromorpha minima* var. *subsalsa*).

Distribution.

- Pacific Coast: Skagway, Alaska, to Oregon.
 Local: British Columbia: Esquimalt (CAN 937, 1556, 1559); Departure B. (CAN 1210). Barkley Sound (UC 491833).
 Washington: Chuckanut Quarry (UC 97875); Puget Sound.

Habitat.

Above the intertidal zone on dripping rocks and in lagoons.

Family 4. ULVACEAE

Enteromorpha clathrata (Roth) Greville, 1830: 181.*References.*

- Greville, 1830, p. 181.
 Kützinger, 1843, p. 300 (as *E. plumosa*).
 Agardh, 1883, p. 144 (as *E. crinita*), p. 152 (as *E. erecta*).
 Setchell and Gardner, 1903, p. 214 (as *E. crinita*); 1920b, p. 259 (as *E. plumosa* and *E. erecta*), p. 258 (as *E. crinita*), p. 260; 1930, p. 137 (as *E. plumosa*).
 Collins, 1909b, p. 198 (as *E. plumosa*), p. 199 (also as *E. crinita*), p. 200 (as *E. erecta*); 1913, p. 101 (also as *E. crinita*).
 Bliding, 1944, p. 331.
 Smith, 1944, p. 51.
 Taylor, 1945, p. 39 (as *E. crinita*).
 Sanborn and Doty, 1947, p. 24 (as *E. crinita*).
 Doty, 1947a, p. 16.

Distribution.

- Pacific Coast: Valdez, Alaska, to Mexico.
 Local: British Columbia: Amphitrite Point; Ucluelet (V 1371); Departure Bay (V 1362; CAN 1211, 1093, 1020, 1550; UC 266483); Comox (CAN 484; UC 90949).
 Washington: Puget Sound; Tracyton (UC 763580, 763579, 763675).

New Records.

- British Columbia: Mayne I., 1914 (V 1372).
 Washington: Jeckyll Lagoon, 21 June 1948 (REN 306).
 Horseshoe B., 20 July 1948 (REN 300).

Habitat.

- On stones, epiphytic on other algae or floating in slightly brackish water in the middle intertidal zone.

Enteromorpha compressa (Linnaeus) Greville, 1830: 180.*References.*

- Greville, 1830, p. 180.
 Harvey, 1858, p. 57; 1862, p. 176.
 Bailey and Harvey, 1862, p. 163.
 Setchell and Gardner, 1903, p. 213; 1920b, p. 251.
 Collins, 1909b, p. 201; 1913, p. 101.
 Smith, 1944, p. 52.
 Dawson, 1944a, p. 203.
 Doty, 1947a, p. 14.

Distribution.

Pacific Coast: Bering Sea to Mexico.

Local: British Columbia: Esquimalt; Nanaimo (UC 519297).

Washington: Snakalum Point; Whidbey I. (UC 97810);
Puget Sound.

New Records.

British Columbia: Departure B., 15 July 1908 (V 1377;
CAN 1196); 10 August 1908 (CAN 1551).

Habitat.

On rocks and other algae in the upper and middle intertidal zones.

Enteromorpha intestinalis f. clavata J. Agardh, 1883: 131.*References.*

Agardh, 1883, p. 131.

Setchell and Gardner, 1903, p. 212 (as *E. intestinalis* f. *genuina*); 1920b, p. 253.

Collins, 1909b, p. 205; 1913, p. 102.

Distribution.

Pacific Coast: Kukak B., Alaska, to Mexico.

Local: British Columbia: Vancouver Island.

Washington: Tracyton (UC 278314, 763510); Neah B.
(UC 205662).

New Records.

British Columbia: Sidney, 1 October 1917 (V 1370). Comox,
July 1915 (CAN 505).

Habitat.

Attached to pebbles in the middle intertidal zone.

Enteromorpha intestinalis f. cylindracea J. Agardh, 1883: 131.*References.*

Agardh, 1883, p. 131.

Setchell and Gardner, 1903, p. 212; 1920b, p. 252.

Collins, 1909b, p. 205; 1913, p. 102.

Dawson, 1946, p. 7.

Distribution.

Pacific Coast: Popof I., Alaska, to Mexico.

Local: British Columbia: Vancouver Island.

Washington: Friday Harbor (UC 205658).

Habitat.

Usually floating unattached in sheltered waters.

Enteromorpha intestinalis (Linnaeus) Link f. **intestinalis**, 1820: 5.*References.*

Link, 1820, p. 5 (as *E. intestinalis*).

Harvey, 1862, p. 176 (as *E. intestinalis*).

References—Concluded

- Setchell and Gardner, 1903, p. 212 (as *E. intestinalis*); 1920b, p. 252 (as *E. intestinalis*).
 Collins, 1909b, p. 204 (as *E. intestinalis*); 1913, p. 102 (as *E. intestinalis*).
 Dawson, 1944a, p. 203 (as *E. intestinalis*).
 Smith, 1944, p. 49 (as *E. intestinalis*).
 Sanborn and Doty, 1947a, p. 24 (as *E. intestinalis*).
 Doty, 1947a, p. 14 (as *E. intestinalis*).
 Rigg and Miller, 1949, p. 332 (as *E. intestinalis*).

Distribution.

- Pacific Coast: Kukak B., Alaska, to Mexico.
 Local: British Columbia: Port Renfrew; Strait of Georgia; Barkley Sound (UC 464051).
 Washington: Neah B. (UW 137750; UBC 95); Whidbey I. (UW 64486b; UC 97827, 97832, 97830, 97836); East Sound (UC 97834); San Juan I.

New Records.

- British Columbia: Comox, 16 June 1893 (CAN 1203); July 1915 (CAN 1544); 28 March 1940 (UC 633264). Ucluelet, 13 June 1909 (CAN 396); 5 May 1909 (UC 77719). Departure B., 24 June 1908 (CAN 202, 1212, 1555). Sidney Spit, 11 September 1946 (RFS 360). Beacon Hill, 15 June 1908 (CAN 982, 1066). Esquimalt, 11 June 1908 (CAN 953).
 Washington: False Bay, 29 May 1949 (RFS 361). Ballard Beach, 4 October 1904 (UW 64702). Point Caution, 25 May 1949 (RFS 362). Hood Canal, July 1925 (UW 64023). Sucia Is., 15 July 1904 (UW 64703).

Habitat.

- On rocks or epiphytic on other algae in the upper intertidal zone, particularly in somewhat brackish water.

Enteromorpha intestinalis* f. *maxima* J. Agardh, 1883: 132.References.*

- Agardh, 1883, p. 132.
 Saunders, 1901b, p. 411.
 Setchell and Gardner, 1903, p. 212; 1920b, p. 253.
 Collins, 1909b, p. 205; 1913, p. 102.
 Dawson, 1946, p. 7.

Distribution.

- Pacific Coast: Kukak B., Alaska, to Mexico.
 Local: British Columbia: Victoria.

New Records.

- British Columbia: Ucluelet (CAN 1205). Comox, July 1915 (CAN 1208). Sidney, 1913 (CAN 1547).

Habitat.

Usually floating unattached in sheltered waters.

Enteromorpha linza (Linnaeus) J. Agardh, 1883: 134.

References.

- Agardh, 1883, p. 134.
 Harvey, 1862, p. 176 (as *Ulva linza*).
 Setchell and Gardner, 1903, p. 213 (as *E. linza* f. *lanceolata*),
 p. 212; 1920b, p. 262 (as *Ulva linza*).
 Collins, 1909b, p. 206; 1913, p. 102.
 Bliding, 1939, p. 139.
 Smith, 1944, p. 44 (as *Ulva linza*).
 Sanborn and Doty, 1947, p. 24 (as *Ulva linza*).
 Doty, 1947a, p. 18.
 Rigg and Miller, 1949, p. 332 (as *Ulva linza*).

Distribution.

- Pacific Coast: Orca, Alaska, to Mexico.
 Local: British Columbia: Esquimalt; Victoria (CAN 1560;
 UW 64263; UC 763674, 205634, 402090); Sooke
 (UC 463966).
 Washington: Friday Harbor (UC 97848, 205671);
 Orcas I. (UC 98112); Neah B.; Whidbey I. (UW
 64486a; UC 97862, 97858); Griffin B. (UC 402089).

New Records.

- British Columbia: Departure B., 24 June 1908 (V 1364;
 CAN 1202, 995). Sidney, 1913 (V 1365; CAN 517);
 5 September 1917 (V 1366; CAN 1138). Mayne I.,
 1914 (V 1367). Ucluelet, 5 May 1909 (CAN 1201);
 5 May 1909 (UC 277720).
 Washington: Ballard Beach, 5 April 1904 (UW 64487).
 Griffin B., August 1917 (UW 64262).

Habitat.

On rocks or epiphytic on other algae in the lower inter-
 tidal zone.

Enteromorpha marginata J. Agardh, 1842: 16.

References.

- Agardh, 1842, p. 16.
 Collins, 1909b, p. 202; 1913, p. 102.
 Setchell and Gardner, 1920b, p. 257.

Distribution.

- Pacific Coast: Southern British Columbia to California.
 Local: British Columbia: Departure B.

New Records.

British Columbia: Mayne I., June 1914 (V 1375). Sidney, 1913 (V 1376; CAN 471, 231, 1548). Comox, 1915 (CAN 1141).

Habitat.

Epiphytic on spermatophytes, usually in salt marshes.

Enteromorpha prolifera (Müller) J. Agardh, 1883: 129.

References.

Agardh, 1883, p. 129.
Setchell and Gardner, 1903, p. 211; 1920b, p. 254.
Collins, 1909b, p. 202; 1913, p. 102.
Bliding, 1939, p. 134.
Dawson, 1944a, p. 204.
Doty, 1947a, p. 14.

Distribution.

Pacific Coast: Golovnin B., Alaska, to Central America.
Local: British Columbia: Victoria (UC 90755); Qualicum B. (UC 90751, 90757); Ucluelet (V 1368; CAN 474, 1552); Esquimalt; Departure B. (CAN 1001, 1207).
Washington: Coupeville; Tracyton (UC 278316, 278315); Whidbey I. (UC 97917, 97918).

New Records.

British Columbia: Mayne I., June 1914 (CAN 399, 1557, 1558).

Habitat.

On sticks and stones in the lower intertidal zone in sheltered bays, often floating.

Enteromorpha torta (Mertens) Reinbold, 1893: 201.

References.

Reinbold, 1893, p. 201.
Collins, 1909b, p. 198.
Setchell and Gardner, 1920b, p. 258.
Jao, 1937, p. 103.

Distribution.

Pacific Coast: Southern British Columbia to San Diego, California.
Local: Washington: Dinner Point; McConnell I.

New Records.

British Columbia: Departure B., 2 August 1908 (CAN 1195, 1554).

Habitat.

Attached to rocks in shallow pools in the upper intertidal zone; also in lagoons.

Enteromorpha tubulosa Kützinger, 1856: 11.*References.*

- Kützinger, 1856, p. 11.
 Collins, 1909b, p. 203 (as *E. prolifera* var. *tubulosa*).
 Setchell and Gardner, 1920b, p. 256.
 Smith, 1944, p. 51.
 Dawson, 1945d, p. 59.
 Taylor, 1945, p. 38.
 Rigg and Miller, 1949, p. 332.

Distribution.

- Pacific Coast: Northern Washington to Central America.
 Local: Washington: Neah Bay.

Habitat.

- On rocks in the lower intertidal zone.

Ulva expansa (Setchell) Setchell and Gardner, 1920a: 284.*References.*

- Collins, 1909b, p. 216 (as *U. fasciata* f. *expansa*).
 Setchell and Gardner, 1920a, p. 284; 1920b, p. 268.
 Smith, 1944, p. 46.
 Sanborn and Doty, 1947, p. 24.
 Doty, 1947a, p. 10.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Mill B. (UC 464052).
 Washington: Puget Sound; Friday Harbor
 (UC 205632).

Habitat.

- On rocks or epiphytic on other algae in the lower intertidal zone; or floating in quiet water.

Ulva fenestrata Postels and Ruprecht, 1840: 21.*References.*

- Postels and Ruprecht, 1840, p. 21.
 Setchell and Gardner, 1920b, p. 267.
 Sanborn and Doty, 1947, p. 24.
 Doty, 1947a, p. 9.

Distribution.

- Pacific Coast: Sitka, Alaska, to Oregon.
 Local: Washington: Puget Sound (UW 70548); Neah B.
 (UC 393923); Camano I. (UC 205631, 132730,
 132771, 132733, 132731, 132732, 132729); Whidbey I.
 (UC 98458); Argyle Lagoon (UC 276858).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Ulva lactuca Linnaeus, 1753: 1163.

References.

- Linnaeus, 1753, p. 1163.
 Collins, 1909b, p. 214.
 Setchell and Gardner, 1920b, p. 265.
 Dawson, 1944a, p. 202; 1945d, p. 63.
 Smith, 1944, p. 45.
 Taylor, 1945, p. 42.
 Sanborn and Doty, 1947, p. 19.
 Rigg and Miller, 1949, p. 332.

Distribution.

Pacific Coast: Bering Sea to Panama.
 Local: Washington: Neah B.; Tracyton (UC 763576).

New Records.

- British Columbia: Sandstone Creek, 10 July 1925 (V 1397).
 Quatsino Sound (UC 463969).
 Washington: Kanaka B., 25 July 1907 (UW 64798). Friday
 Harbor, 25 July 1907 (UW 64484).

Habitat.

On rocks or epiphytic on other algae in the upper intertidal zone; often floating.

Ulva latissima Linnaeus, 1753: 1163.

References.

- Linnaeus, 1753, p. 1163.
 Harvey, 1858, p. 59; 1862, p. 176.
 Bailey and Harvey, 1862, p. 163 (as *U. lactuca* var. *latissima*).
 Setchell and Gardner, 1903, p. 210 (as *U. lactuca* var. *latissima*)
 1920b, p. 266.
 Collins, 1909b, p. 215 (as *U. lactuca* var. *latissima*); 1913,
 p. 103 (as *U. lactuca* var. *latissima*).
 Connell, 1928, p. 100 (as *U. lactuca* f. *latissima*).

Distribution.

Pacific Coast: Juneau, Alaska, to Northern Washington.
 Local: British Columbia: Esquimalt; West Coast Vancouver
 I.; Departure B. (CAN 378, 326, 478, 773, 1576,
 1577).
 Washington: Whidbey I. (UW 64163); Roche Harbor;
 Friday Harbor; East Sound; Puget Sound.

New Records.

British Columbia: Beacon Hill, 18 March 1897 (UBC 159). Kitsilano, 14 April 1913 (UBC 158). Bazan B., 5 October 1916 (CAN 909). Mayne I., 1914 (V 1398; CAN 348). Sidney, 26 September 1917 (V 1399); 1916 (CAN 518); 1913 (CAN 407). Queen Charlotte Is., 1911 (CAN 241).

Washington: Deer Harbor, 1 July 1904 (UW 64491).

Habitat.

On mud flats in the lower intertidal zone in quiet bays; often floating.

Ulva rigida C. Agardh, 1822: 410.

References.

- Agardh, 1822, p. 410.
 Harvey, 1862, p. 176 (also as *U. fasciata*).
 Kjellman, 1889b, p. 53 (as *U. lactuca* var. *rigida*).
 Setchell and Gardner, 1903, p. 209 (as *U. lactuca* var. *rigida*); 1920b, p. 269.
 Collins, 1909b, p. 215 (as *U. lactuca* var. *rigida*); 1913, p. 103 (as *U. lactuca* var. *rigida*).
 Smith, 1944, p. 47.
 Dawson, 1944a, p. 202.

Distribution.

Pacific Coast: Uyak B., Alaska, to Mexico.
 Local: British Columbia: Port Renfrew; Esquimalt; Departure B. (UC 90739).
 Washington: Idlewild, San Juan I. (UC 763677); Tracyton.

New Records.

British Columbia: Colquitz R., 10 June 1908 (CAN 157). Sidney, 1913 (CAN 1135); 1917 (CAN 522). Comox, 1915 (V 1400). Oak B., 5 June 1908 (V 1401; CAN 470); 19 June 1898 (UBC 160). Beacon Hill, 2 June 1908 (CAN 357, 494, 244). Ucluelet, 5 May 1909 (CAN 426).
 Washington: Waadah I., 15 July 1954 (RFS 168L).

Habitat.

On rocks and epiphytic on other algae in the upper intertidal zone.

Percursaria percura (C. Agardh) Bory, 1828b: 206.

References.

- Bory, 1828b, p. 206.
 Setchell and Gardner, 1903, p. 214 (as *Enteromorpha percura*); 1920b, p. 274.
 Collins, 1909b, p. 197 (as *Enteromorpha percura*).
 Papenfuss, 1950a, p. 179.

Distribution.

Pacific Coast: Amaknak I., Alaska, to San Francisco, California.

Local: Washington: Whidbey I. (UC 97907, 97908); San Juan I.

New Records.

British Columbia: Sidney, 1913 (V 1373-4; CAN 515; UC 276587).

Washington: Griffin Bay Lagoon, 3 July 1954 (RFS 161L).

Habitat.

In brackish pools in the upper intertidal zone and in lagoons.

Order 3. SCHIZOGONIALES

Family 1. PRASIOACEAE

***Schizogonium murale f. uniseriatum** Jao, 1937: 104.*References.*

Jao, 1937, p. 104.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Dinner Point.

Habitat.

On old wood in the upper intertidal zone.

Prasiola calophylla (Carmichael) Meneghini, 1838: 36.*References.*

Meneghini, 1838, p. 36.

Setchell and Gardner, 1903, p. 215; 1920b, p. 277.

Collins, 1909b, p. 219.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Penn Cove, Whidbey I. (UC 98158, 98157).

Habitat.

In brackish water in the upper intertidal zone.

†Prasiola linearis Jao, 1937: 105.*References.*

Jao, 1937, p. 105.

* The genus *Schizogonium* is believed to be synonymous with *Prasiola*. This record is probably for an early stage in the development of *Prasiola linearis* Jao (see p. 46.)

† See also *Schizogonium murale* f. *uniseriatum* Jao, p. 46.

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Argyle Lagoon.

Habitat.

On gravel and spermatophytes in the upper intertidal zone.

**Prasiola meridionalis* Setchell and Gardner, 1920a: 291.

References.

Setchell and Gardner, 1920a, p. 291; 1920b, p. 278.
Smith, 1944, p. 53.
Doty, 1947a, p. 22.
Rigg and Miller, 1949, p. 332.

Distribution.

Pacific Coast: Northern Washington to Carmel, California.
Local: Washington: Friday Harbor; Neah B.; Goose I.

New Records.

Washington: Goose I., 29 July 1954 (RFS 172L).

Habitat.

In spray zone just above the intertidal zone on exposed rocks
(usually bird rocks).

†*Rosenvingiella constricta* (Setchell and Gardner) Silva, 1957: 41.

References.

Gardner, 1917, p. 384 (as *Gayella constricta*).
Setchell and Gardner, 1920b, p. 280 (as *Gayella constricta*).
Smith, 1944, p. 54 (as *Gayella constricta*).
Silva, 1957, p. 41.

Distribution.

Pacific Coast: Northern Washington to Monterey, California.
Local: Washington: Friday Harbor; Minnesota Reef (UC 420959).

Habitat.

In spray zone just above the intertidal zone on exposed rocks.

Order 4. CLADOPHORALES

Family 1. CLADOPHORACEAE

Rhizoclonium implexum (Dillwyn) Kützinger, 1845: 206.

References.

Kützinger, 1845, p. 206.
Setchell and Gardner, 1903, p. 222 (as *R. riparium* f. *implexum*); 1920b, p. 183.

* See also *Rosenvingiella constricta* (Setchell and Gardner) Silva (p. 47).

† The genus *Rosenvingiella* is regarded by some authors to be synonymous with *Prasiola*. These records may be for a stage in the development of *Prasiola meridionalis* Setchell and Gardner (see p. 47).

References—Concluded

- Collins, 1909b, p. 328 (as *R. riparium* var. *implexum*); 1913, p. 103 (as *R. riparium* var. *implexum*).
 Smith, 1944, p. 62.
 Doty, 1947a, p. 26.

Distribution.

- Pacific Coast: St. Michael I., Alaska, to Carmel, California.
 Local: British Columbia: Colquitz R.; Pedder Inlet; Departure B. (V 1386; UW 63579).
 Washington: Whidbey I.; San Juan I.

New Records.

- British Columbia: Sidney, 1 October 1917 (V 1387).

Habitat.

- On mud, sand, or pebbles in the intertidal zone.

Rhizoclonium kernerii Stockmayer, 1890: 582.*References.*

- Stockmayer, 1890, p. 582.
 Collins, 1909b, p. 329; 1913, p. 103.
 Setchell and Gardner, 1920b, p. 185.
 Taylor, 1945, p. 55.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Victoria (CAN 503).

Habitat.

- In loose masses in pools in the intertidal zone.

Rhizoclonium riparium (Roth) Harvey, 1849: 238.*References.*

- Harvey, 1849, p. 238.
 Collins, 1909b, p. 327 (as *R. riparium* var. *polyrhizum*); 1913, p. 103 (as *R. riparium* var. *polyrhizum*).
 Setchell and Gardner, 1920b, p. 182.
 Smith, 1944, p. 63.
 Taylor, 1945, p. 55.
 Sanborn and Doty, 1947, p. 26.
 Doty, 1947a, p. 25.
 Hollenberg, 1948, p. 155.

Distribution.

- Pacific Coast: Unalaska I., Alaska, to Mexico.
 Local: British Columbia: Esquimalt (V 1385); Juan de Fuca Strait (UC 763669).
 Washington: Whidbey I. (UC 98220, 98199, 98202, 98219); San Juan I. (UC 98200).

New Records.

British Columbia: Colquitz R., 10 June 1908 (CAN 487).
 Mayne I., June 1914 (V 1384; CAN 39, 111-113).
 Departure B., 26 June 1908 (CAN 84).

Habitat.

In skein-like masses on various substrata in the upper intertidal zone.

Rhizoclonium tortuosum (Dillwyn) Kützing, 1845: 205.*References.*

Kützing, 1845, p. 205.
 Harvey, 1858, p. 88 (as *Chaetomorpha tortuosa*).
 Setchell and Gardner, 1903, p. 223; 1920b, p. 185.
 Collins, 1909b, p. 328.
 Smith, 1944, p. 62.
 Sanborn and Doty, 1947, p. 26.
 Doty, 1947a, p. 25.

Distribution.

Pacific Coast: Kodiak B., Alaska, to Carmel, California.
 Local: Washington: Whidbey I.

Habitat.

On various algae in the upper and middle intertidal zones.

Lola lubrica (Setchell and Gardner) A. and G. Hamel, 1929: 1094.*References.*

Gardner, 1919, p. 492 (as *Rhizoclonium lubricum*).
 Setchell and Gardner, 1920b, p. 185 (as *Rhizoclonium lubricum*).
 Hamel, A. and G., 1929, p. 1094.
 Dawson, 1944a, p. 208.
 Taylor, 1945, p. 56 (as *Rhizoclonium lubricum*).
 Doty, 1947a, p. 26 (as *Rhizoclonium lubricum*).

Distribution.

Pacific Coast: Northern Washington to Costa Rica.
 Local: Washington: Roche Harbor (UW 64260); Argyle Lagoon.

New Records.

Washington: Argyle Lagoon, 9 August 1954 (RFS 182L).

Habitat.

On mud flats in the intertidal zone.

***Urospora grandis** Kylin, 1907: 18.

References.

- Kylin, 1907, p. 18 (as *Hormiscia grandis*).
 Gardner, 1919, p. 494 (as *Hormiscia grandis*).
 Setchell and Gardner, 1920b, p. 195 (as *Hormiscia grandis*).
 Briquet, 1935, p. 120.
 Doty, 1947a, p. 26.
 Silva, 1952, p. 270.

Distribution.

- Pacific Coast: Unalaska I., Alaska, to Oregon.
 Local: British Columbia: Port Renfrew; Esquimalt (UC 98533).
 Washington: Whidbey I.; Puget Sound; San Juan I. (UC 98544, 98546).

Habitat.

On rocks in the upper intertidal zone.

Urospora penicilliformis (Roth) Areschoug, 1866: 16.

References.

- Fries, 1835, p. 327 (as *Hormiscia penicilliformis*).
 Harvey, 1858, p. 90 (as *Hormotrichum speciosum*); 1862, p. 177 (as *Hormotrichum carmichaelii*).
 Areschoug, 1866, p. 16.
 Setchell and Gardner, 1903, p. 220; 1920b, p. 191 (as *Hormiscia penicilliformis*).
 Collins, 1909b, p. 368 (as *Hormiscia penicilliformis*); 1913, p. 105 (as *Hormiscia penicilliformis*).
 Briquet, 1935, p. 120.
 Smith, 1944, p. 64.
 Sanborn and Doty, 1947, p. 25.
 Doty, 1947a, p. 27.
 Silva, 1952, p. 270.
 Dawson, 1953b, p. 324.

Distribution.

- Pacific Coast: Bering Sea to Southern California.
 Local: British Columbia: Juan de Fuca Strait; Port Renfrew; Esquimalt; Departure B.
 Washington: Whidbey I.

Habitat.

On rocks and old wood in the upper intertidal zone, frequently exposed to surf.

* See *Codiolum gregarium* A. Braun, p. 60.

Urospora sphaerulifera Setchell and Gardner, *in* Gardner, 1919: 493.*References.*

- Gardner, 1919, p. 493 (as *Hormiscia sphaerulifera*).
 Setchell and Gardner, 1920b, p. 196 (as *Hormiscia sphaerulifera*).

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: West Coast of Whidbey I. (UC 98545).

Habitat.

- On boulders in the lower intertidal zone.

Urospora tetraciliata Frye and Zeller, 1915: 9.*References.*

- Frye and Zeller, 1915, p. 9 (as *Hormiscia tetraciliata*).
 Collins, 1918, p. 86 (as *Hormiscia tetraciliata*).
 Setchell and Gardner, 1920b, p. 193 (as *Hormiscia tetraciliata*).

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: San Juan I.; Friday Harbor (UC 197776).

Habitat.

- On stones, shells, and epiphytic on other algae in the intertidal zone.

Urospora vancouveriana (Tilden) Setchell and Gardner, *in* Gardner, 1919: 494.*References.*

- Gardner, 1919, p. 494 (as *Hormiscia vancouveriana*).
 Setchell and Gardner, 1920b, p. 197 (as *Hormiscia vancouveriana*).

Distribution.

- Pacific Coast: Southern British Columbia.
 Local: British Columbia: Near Oak B.

Habitat.

- On stones and shells in the lower intertidal zone.

Urospora wormskioldii (Mertens) Rosenvinge, 1893: 920.*References.*

- Fries, 1835, p. 328 (as *Hormiscia wormskioldii*).
 Rosenvinge, 1893, p. 920.
 Setchell and Gardner, 1903, p. 221; 1920b, p. 196 (as *Hormiscia wormskioldii*).
 Collins, 1909b, p. 368 (as *Hormiscia wormskioldii*); 1913, p. 105 (as *Hormiscia wormskioldii*).
 Sanborn and Doty, 1947, p. 25.
 Doty, 1947a, p. 27.

Distribution.

Pacific Coast: Southern British Columbia to Southern California.

Local: British Columbia: Victoria (CAN 406).

Washington: Friday Harbor; Whidbey I.; San Jaun I.

New Records.

British Columbia: Sidney, 13 March 1913 (V 1380; CAN 516).

Habitat.

On rocks and old wood in the lower intertidal zone.

Chaetomorpha cannabina (Areschoug) Kjellman, 1889b: 55.*References.*

Kjellman, 1889b, p. 55.

Setchell and Gardner, 1903, p. 221; 1920b, p. 204.

Collins, 1909b, p. 325.

Rigg and Miller, 1949, p. 332.

Distribution.

Pacific Coast: Norton Sound, Alaska, to Northern Washington.

Local: Washington: Friday Harbor; Neah B.; Puget Sound.

Habitat.

In tangled masses, often intertwined with other algae in pools in the intertidal zone.

Chaetomorpha tenuissima Jao, 1937: 101.*References.*

Jao, 1937, p. 101.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Bell I.; Turn I.; Friday Harbor.

Habitat.

Epiphytic on various other algae, including *Codium fragile*, *Platythamnion pectinatum*, *Acrochaetium rhizoideum*, and articulated corallines in the lower intertidal and upper subtidal zones.

Cladophora albida (Hudson) Kützinger, 1843: 267.*References.*

Kützinger, 1843, p. 267.

Harvey, 1858, p. 80.

Collins, 1909b, p. 336.

Setchell and Gardner, 1920b, p. 218.

Dawson, 1944a, p. 209.

Distribution.

Pacific Coast: Northern Washington to Mexico.
Local: Washington: East Sound.

New Records.

British Columbia: Vancouver I. (CAN 486).

Habitat.

In the intertidal zone.

Cladophora flexuosa (Griffiths) Harvey, 1851: 353.*References.*

Harvey, 1851, p. 353; 1858, p. 78.
Setchell and Gardner, 1903, p. 224; 1920b, p. 217.
Collins, 1909b, p. 339; 1913, p. 104.
Smith, 1944, p. 60.

Distribution.

Pacific Coast: Annette I., Alaska, to Southern California.
Local: British Columbia: Victoria.

New Records.

British Columbia: Ucluelet, 7 June 1909 (CAN 1133, 529).

Habitat.

In rock pools in the lower intertidal zone.

Cladophora glaucescens (Griffiths) Harvey, 1862: 176.*References.*

Harvey, 1858, p. 77; 1862, p. 176.
Setchell and Gardner, 1903, p. 224; 1920b, p. 219.
Collins, 1909b, p. 336; 1913, p. 103.
Rigg and Miller, 1949, p. 332.

Distribution.

Pacific Coast: Southern British Columbia to Oakland, California.
Local: British Columbia: Nanaimo.
Washington: Neah B.

Habitat.

In pools in the upper intertidal zone.

Cladophora gracilis (Griffiths) Kützinger, 1845: 215.*References.*

Kützinger, 1845, p. 215.
Harvey, 1858, p. 80.
Collins, 1909b, p. 342.
Setchell and Gardner, 1920b, p. 216.
Taylor, 1945, p. 57.
Doty, 1947a, p. 23.

Distribution.

Pacific Coast: Sitka, Alaska, to Mexico.

Local: Washington: Neah B.

New Records.

British Columbia: Comox (CAN 506). Ucluelet, 1909 (CAN 526).

Habitat.

In shallow pools in the upper and middle intertidal zones.

Cladophora hutchinsiae var. **distans** (C. Agardh) Kützinger, 1849: 392.

References.

Kützinger, 1849, p. 392.

Harvey, 1858, p. 83 (as *C. diffusa*).

Setchell and Gardner, 1903, p. 228; 1920b, p. 213.

Collins, 1909b, p. 346; 1913, p. 104.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Port Renfrew.

New Records.

British Columbia: Vancouver I., 1873 (CAN 540).

Habitat.

In the intertidal zone.

Cladophora hutchinsiae (Dillwyn) Kützinger var. **hutchinsiae**, 1845: 210.

References.

Kützinger, 1845, p. 210 (as *C. hutchinsiae*).

Collins, 1909b, p. 345 (as *C. hutchinsiae*).

Setchell and Gardner, 1920b, p. 213 (as *C. hutchinsiae*).

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Vancouver Island.

Habitat.

In the intertidal zone.

Cladophora laetevirens (Dillwyn) Kützinger, 1843: 263.

References.

Kützinger, 1843, p. 263.

Harvey, 1858, p. 82; 1862, p. 177.

Setchell and Gardner, 1903, p. 224; 1920b, p. 216.

Collins, 1909b, p. 345; 1913, p. 104.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Port Renfrew; Juan de Fuca Strait.

Habitat.

In the lower intertidal and upper subtidal zones.

Cladophora microcladioides Collins, 1909a: 17.*References.*

- Collins, 1909a, p. 17; 1909b, p. 344; 1913, p. 104.
 Setchell and Gardner, 1920b, p. 212.
 Smith, 1944, p. 59.
 Dawson, 1944a, p. 209; 1945d, pp. 60 and 64.
 Sanborn and Doty, 1947, p. 25.
 Doty, 1947a, p. 23.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Amphitrite Point (UC 277407);
 Little Toquart Bay (V 1235; CAN 464).

New Records.

British Columbia: Ucluelet, 1909 (CAN 1139).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Cladophora stimpsonii Harvey, 1859a: 333.*References.*

- Harvey, 1859a, p. 333.
 Collins, 1909b, p. 338; 1913, p. 104.
 Setchell and Gardner, 1920b, p. 219.
 Rigg and Miller, 1949, p. 332.

Distribution.

Pacific Coast: Southern British Columbia to Southern California.
 Local: British Columbia: Ucluelet (V 1236; CAN 556, 1142, 1132).
 Washington: Neah B.

New Records.

British Columbia: Amphitrite Point, 20 May 1909 (CAN 534).

Habitat.

On shells and stones in the intertidal zone.

Cladophora trichotoma (C. Agardh) Kützinger, 1849: 414.*References.*

- Kützinger, 1849, p. 414.
 Setchell and Gardner, 1903, p. 226 (as *C. columbiana*); 1920b, p. 210.

References—Concluded

- Collins, 1909b, p. 349; 1913, p. 104.
 Smith, 1944, p. 58.
 Dawson, 1944a, p. 210; 1945d, p. 64.
 Sanborn and Doty, 1947, p. 25.
 Doty, 1947a, p. 23.
 Rigg and Miller, 1949, p. 332.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Amphitrite Point (CAN 511, 528;
 V 1237); Port Renfrew.
 Washington: Neah Bay.

New Records.

- British Columbia: Ucluelet, 7 May 1909 (CAN 536, 422).
 Washington: Waadah I., 15 July 1954 (RFS 170L).

Habitat.

- On rocks or in rock pools in the upper intertidal zone.

Spongomorpha arcta (Dillwyn) Kützing, 1849: 417.*References.*

- Kützing, 1849, p. 417.
 Harvey, 1858, p. 75 (as *Cladophora arcta*); 1862, p. 176 (as
Cladophora arcta).
 Setchell and Gardner, 1903, p. 224 (as *Cladophora arcta*);
 1920b, p. 223.
 Collins, 1909b, p. 223; 1913, p. 104.
 Sanborn and Doty, 1947, p. 25.

Distribution.

- Pacific Coast: Bering Sea to Oregon.
 Local: British Columbia: Sidney (UC 276559); Ucluelet
 (CAN 402, 116, 531); Esquimalt (UC 97448).
 Washington: Orcas I. (UC 97447); Puget Sound
 (UW 63914). San Juan I. (UC 97459); Port
 Ludlow (UC 97560, 97556); Channel Rocks (UC
 97449, 97559, 97558).

New Records.

- British Columbia: Queen Charlotte Is., 1911 (V 1392).
 Sidney, 1917 (CAN 510).

Habitat.

- On rock and epiphytic on other algae in the middle and lower
 intertidal zones.

Spongomorpha coalita (Ruprecht) Collins, 1909b: 361.*References.*

- Harvey, 1858, p. 75 (as *Cladophora cartilaginea*).
 Setchell and Gardner, 1903, p. 226 (as *Cladophora hystrix*),
 p. 227 (as *Cladophora scopaeformis* and *C. coalita*);
 1920b, p. 230.
 Collins, 1909b, p. 361; 1913, p. 104 (also as *Spongomorpha hystrix*).
 Smith, 1944, p. 65.
 Sanborn and Doty, 1947, p. 25.
 Doty, 1947a, p. 24.
 Rigg and Miller, 1949, p. 332.

Distribution.

- Pacific Coast: Kukak B., Unalaska I., Alaska, to Carmel, California.
 Local: British Columbia: Esquimalt (UC 97464); Port Renfrew; Comox (UC 90753); Gonzales Point; Victoria (CAN 519, 530; V 1389; UC 90754); Sooke (UC 464053).
 Washington: Whidbey I. (UC 97463, 97465, 97466, 97467, 97470, 97468); Neah B.; Port Townsend (UC 97471, 97472); Kanaka B. (UC 276875).

New Records.

- British Columbia: Little Toquart B., 15 June 1909 (CAN 539). Beacon Hill, 2 June 1908 (V 1396; CAN 481, 152). Ucluelet, 15 June 1909 (CAN 403, 1140). Queen Charlotte Is., 1911 (CAN 129). Cape Lazo, 20 June 1893 (CAN 533). Vancouver I. (CAN 398).
 Washington: West Beach, 3 September 1949 (REN 136). Mukkaw B., 30 May 1948 (REN 287). Friday Harbor, July 1908 (UW 64802). Kanaka B., July 1925 (UW 63528).

Habitat.

- On rocks and epiphytic on other algae in the middle and lower intertidal zones.

Spongomorpha mertensii (Ruprecht) Setchell and Gardner, 1920a: 280.*References.*

- Setchell and Gardner, 1920a, p. 280; 1920b, p. 227.
 Sanborn and Doty, 1947, p. 25.
 Doty, 1947a, p. 24.

Distribution.

- Pacific Coast: Unalaska I., Alaska, to San Francisco, California.

Habitat.

- In the intertidal zone.

Spongomorpha saxatilis var. **chamissonis** (Ruprecht) Collins, 1909b: 360.

References.

- Harvey, 1858, p. 75 (as *Cladophora chamissonis*).
 Setchell and Gardner, 1903, p. 224 (as *Cladophora chamissonis*); 1920b, p. 227.
 Collins, 1909b, p. 360.

Distribution.

- Pacific Coast: Unalaska I., Alaska, to Washington.
 Local: Washington: San Juan I. (UW 64586).

Habitat.

- Epiphytic on other algae in the intertidal zone.

Spongomorpha saxatilis (Ruprecht) Collins var. **saxatilis**, 1909b: 360.

References.

- Setchell and Gardner, 1903, p. 223 (as *Cladophora saxatilis*); 1920b, p. 226 (as *S. saxatilis*).
 Collins, 1909b, p. 360 (as *S. saxatilis*); 1913, p. 104 (as *S. saxatilis*).
 Sanborn and Doty, 1947, p. 25 (as *S. saxatilis*).
 Doty, 1947a, p. 24 (as *S. saxatilis*).

Distribution.

- Pacific Coast: Alaska to San Francisco, California.
 Local: British Columbia: Ucluelet (V 1392; CAN 408).
 Washington: Port Ludlow; Friday Harbor; San Juan I.; Channel Rocks.

Habitat.

- On rocks in the lower intertidal zone.

Spongomorpha spinescens Kützinger, 1849: 418.

References.

- Kützinger, 1849, p. 418.
 Harvey, 1862, p. 176 (in part as *Cladophora scopaeformis*).
 Collins, 1909b, p. 360; 1913, p. 104 (also as *S. arcta* f. *conglutinata*).
 Setchell and Gardner, 1920b, p. 229.
 Sanborn and Doty, 1947, p. 25.
 Doty, 1947a, p. 25.

Distribution.

- Pacific Coast: Unalaska I., Alaska, to Oregon.
 Local: British Columbia: Ucluelet (CAN 477, 1134, 1137); Esquimalt (V 1390).
 Washington: Whidbey I.

New Records.

British Columbia: Kvarno I., 26 July 1909 (CAN 532).
 Sidney, 1913 (V 1391). Beacon Hill, 1913 (V 1395;
 CAN 944).

Washington: Friday Harbor, July 1907 (UW 64532).

Habitat.

Epiphytic on other algae in the upper intertidal zone.

Order 5. **CHLOROCOCCALES**Family 1. **CHLOROCOCCACEAE****Chlorochytrium inclusum** Kjellman, 1883: 320.*References.*

Kjellman, 1883, p. 320.

Freeman, 1899a, p. 195.

Setchell and Gardner, 1903, p. 206; 1920b, p. 147.

Collins, 1909b, p. 147; 1913, p. 101.

Smith, 1944, p. 67.

Doty, 1947a, p. 27.

Distribution.

Pacific Coast: Sitka, Alaska, to Carmel, California.

Local: British Columbia: Port Renfrew; Esquimalt (UC
 763460).

Washington: Whidbey I. (UC 97422); Puget Sound;
 Friday Harbor (UC 276876).

New Records.

Washington: Friday Harbor, July 1927 (UW 64333).

Habitat.

Endophytic in *Schizymenia*, *Iridaea* and various other foliose
 red algae in the intertidal and subtidal zones.

Chlorochytrium porphyrae Setchell and Gardner, *in* Gardner, 1917: 379.*References.*

Gardner, 1917, p. 379.

Setchell and Gardner, 1920b, p. 150.

Smith, 1944, p. 67.

Doty, 1947a, p. 28.

Distribution.

Pacific Coast: Northern Washington to Monterey, California.

Local: Washington: Cape Flattery (UW 67517; UC 651627).

Habitat.

Endophytic in *Porphyra perforata* f. *segregata* and *Porphyra*
lanceolata.

***Codiolum gregarium** A. Braun, 1855: 20.

References.

- Braun, 1855, p. 20.
Collins, 1909b, p. 152.
Setchell and Gardner, 1920b, p. 151.

Distribution.

- Pacific Coast: Southern British Columbia to Northern Washington.
Local: British Columbia: Vancouver I. (UC 276555).
Washington: Friday Harbor (UW 63896, 63898; UC 402046).

Habitat.

On rocks, shells, and old iron in the intertidal zone.

Codiolum petrocelidis Kuckuck, 1894: 259.

References.

- Kuckuck, 1894, p. 259.
Collins, 1909b, p. 152.
Setchell and Gardner, 1920b, p. 152.
Smith, 1944, p. 68.

Distribution.

- Pacific Coast: Northern Washington to Monterey, California.
Local: Washington: Whidbey I.; False B.

New Records.

- Washington: Entrance to False B., 13 August 1954 (RFS 190L).

Habitat.

Endophytic in *Petrocelis franciscana* and *P. middendorffii*.

Codiolum pusillum f. *subsessile* Jao, 1937: 99.

References.

- Jao, 1937, p. 99.

Distribution.

- Pacific Coast: Northern Washington.
Local: Washington: Brown I.

Habitat.

On old wood in the upper intertidal zone.

* According to Jorde (1933) *Codiolum* is the sporophytic phase in the life-cycle of *Urospora* (see p. 50).

Family 2. GOMONTIACEAE

Gomontia polyrhiza (Lagerheim) Bornet and Flahault, 1888: 164.

References.

- Bornet and Flahault, 1888, p. 164.
 Setchell and Gardner, 1903, p. 229; 1920a, p. 298 (also as *G. bornetii*), p. 299 (as *G. habrorhiza*), p. 300 (as *G. caudata*); 1920b, p. 302 (also as *G. bornetii*), p. 304 (as *G. habrorhiza*, and *G. caudata*).
 Collins, 1909b, p. 370; 1913, p. 105.
 Kylin, 1935a, p. 1.
 Smith, 1944, p. 41.
 Doty, 1947a, p. 7.
 Rigg and Miller, 1949, p. 332.

Distribution.

- Pacific Coast: Southern British Columbia to Monterey, California.
 Local: British Columbia: Vancouver Island.
 Washington: Neah Bay (UC 273749, 207098).

Habitat.

- In empty shells in the intertidal zone.

Order 6. SIPHONALES

Family 1. DERBESIACEAE

***Halicystis ovalis** (Lyngbye) Areschoug, 1850: 447.

References.

- Areschoug, 1850, p. 447.
 Setchell and Gardner, 1903, p. 232 (as *Valonia ovalis*); 1920b, p. 155.
 Collins, 1909b, p. 372; 1913, p. 105.
 Hollenberg, 1935, p. 783; 1936, p. 1.
 Smith, 1944, p. 70.
 Sanborn and Doty, 1947, p. 26.
 Doty, 1947a, p. 28.

Distribution.

- Pacific Coast: Silver B., Alaska, to Redondo, California.
 Local: British Columbia: Port Renfrew (UC 98555).
 Washington: Waadah I.

New Records.

- Alaska: North side entrance to Silver B., 8 July 1956 (RFS 212L).
 Washington: Waadah I., 15 July 1954 (RFS 163L).

* See *Derbesia marina* (Lyngbye) Kjellman, p. 63.

Habitat.

Epiphytic on crustaceous coralline algae in the lower intertidal zone on the open coast.

Family 2. BRYOPSIDACEAE

Bryopsis corticulans Setchell, *in* Collins, Holden and Setchell, 1899: 626.

References.

- Collins, Holden and Setchell, 1899 (13), p. 626.
 Setchell and Gardner, 1903, p. 230; 1920b, p. 160.
 Collins, 1909b, p. 404; 1913, p. 106.
 Smith, 1944, p. 73.
 Dawson, 1945a, p. 19; 1951, p. 52; 1953a, p. 106.
 Sanborn and Doty, 1947, p. 26.
 Doty, 1947a, p. 29.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Ucluelet (V 1231, 498); Victoria (UW 64401; UC 402036).
 Washington: Sackman Point; Puget Sound.

New Records.

- British Columbia: Kvarno I., 29 July 1909 (CAN 1214).
 Washington: Mukkaw B., 21 August 1949 (REN 210).

Habitat.

On rocks in the lower intertidal zone.

Bryopsis hypnoides Lamouroux, 1809: 135.

References.

- Lamouroux, 1809, p. 135.
 Setchell and Gardner, 1903, p. 230; 1920b, p. 159.
 Collins, 1909b, p. 403; 1913, p. 105.
 Smith, 1944, p. 73.
 Taylor, 1945, p. 60.

Distribution.

- Pacific Coast: Southern British Columbia to Panama.
 Local: British Columbia: Victoria (CAN 124; UC 98668);
 Departure Bay.
 Washington: English Camp (UC 98670).

New Records.

- British Columbia: Brandon Is., 24 August 1908 (V 1230; CAN 1197).

Habitat.

On rocks, shells, wood and epiphytic on other algae in the intertidal zone.

Bryopsis plumosa (Hudson) C. Agardh, 1822: 448.

References.

- Agardh, 1822, p. 448.
 Harvey, 1858, p. 31.
 Collins, 1909b, p. 403.
 Setchell and Gardner, 1920b, p. 161.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: Washington: Friday Harbor; Tracyton (UC 763661).

New Records.

British Columbia: Muir Creek, 12 April 1925 (V 1232-34; UC 392842).

Washington: Brown I., 28 July 1954 (RFS 173L).

Habitat.

On rocks and old wood in the lower intertidal zone.

***Derbesia marina** (Lyngbye) Kjellman, 1883: 316.

References.

- Kjellman, 1883, p. 316.
 Setchell and Gardner, 1903, p. 230; 1920b, p. 165.
 Collins, 1909b, p. 407.
 Smith, 1944, p. 71.
 Doty, 1947a, p. 28.

Distribution.

Pacific Coast: Sitka, Alaska, to Southern California.

Habitat.

In the intertidal zone.

Derbesia pacifica Jao, 1937: 106.

References.

- Jao, 1937, p. 106.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Turn I.

Habitat.

Epiphytic on articulated corallines in the upper subtidal zone.

* According to Kornmann (1938) and Feldmann (1950) *Derbesia* is the sporophytic phase in the life-cycle of *Halicystis* (see p. 81).

Derbesia vaucheriaeformis (Harvey) J. Agardh, 1887: 34.*References.*

- Agardh, 1887, p. 34.
 Saunders, 1901b, p. 415.
 Setchell and Gardner, 1903, p. 230; 1920b, p. 165 (in part as *D. marina*).
 Collins, 1909b, p. 406.
 Jao, 1937, p. 107.

Distribution.

Pacific Coast: Yakutat B., Alaska, to Northern Washington.
 Local: Washington: Whidbey I.

Habitat.

Dredged from the subtidal zone.

Family 3. CODIACEAE

Codium fragile (Suringar) Hariot, 1889: 32.*References.*

- Harvey, 1858, p. 29 (as *C. tomentosum*); 1862, p. 176 (as *Codium tomentosum*).
 Hariot, 1889, p. 32.
 Setchell and Gardner, 1903, p. 232 (as *C. mucronatum* var. *californicum* and *C. mucronatum* var. *novae zelandiae*); 1920b, p. 171.
 Collins, 1909b, p. 389 (as *C. mucronatum*); 1913, p. 105 (as *C. fragile* f. *californicum* and *C. fragile* f. *novae zelandiae*).
 Hurd, 1916b, p. 389 (as *C. mucronatum*).
 Smith, 1944, p. 75.
 Taylor, 1945, p. 72.
 Dawson, 1945d, p. 64; 1951, p. 52.
 Sanborn and Doty, 1947, p. 26.
 Doty, 1947a, p. 30.
 Rigg and Miller, 1949, p. 332.
 Silva, 1951, p. 96.

Distribution.

Pacific Coast: Sitka, Alaska, to Mexico.

Local: British Columbia: Nootka Sound; Amphitrite Point (CAN 128); Port Renfrew (UC 278357); Esquimalt; Victoria (V 1240; CAN 496, 101); Departure B. (CAN 62, 797); Sooke (UC 463987).

Washington: Whidbey I. (UC 97666); Port Townsend; Port Ludlow; Neah B.; Friday Harbor (UW 64490).

New Records.

British Columbia: Mayne I., 1914 (V 1239). Sooke, August 1893 (CAN 1106). Whiffin Spit, 30 December 1947 (RFS 366, 1011L). Beacon Hill, 1913 (V 1238).

Washington: Turn Point, 6 July 1952 (RFS 44L). West Beach, 24 August 1949 (REN 218). Entrance False Bay, 29 May 1949 (RFS 363); 12 June 1949 (RFS 369).

Habitat.

On rocks in the middle and lower intertidal zones.

Codium ritteri Setchell and Gardner, 1903: 231.

References.

Setchell and Gardner, 1903, p. 231; 1920b, p. 169.

Collins, 1909b, p. 387; 1913, p. 105.

Distribution.

Pacific Coast: Kodiak I., Alaska, to Southern British Columbia.

Local: British Columbia: Port Renfrew (UC 763461).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Codium setchellii Gardner, 1919: 489.

References.

Setchell and Gardner, 1903, p. 231 (as *C. adhaerens*); 1920b, p. 168.

Collins, 1909b, p. 387 (as *C. adhaerens*); 1913, p. 105 (as *C. adhaerens*).

Hurd, 1916a, p. 211 (as *C. dimorphum*).

Gardner, 1919, p. 489.

Smith, 1944, p. 75.

Sanborn and Doty, 1947, p. 26.

Doty, 1947a, p. 30.

Rigg and Miller, 1949, p. 332 (as *C. adhaerens*).

Silva, 1951, p. 83.

Distribution.

Pacific Coast: Sitka, Alaska, to Mexico.

Local: British Columbia: Sooke (CAN 63; UC 468633).

Washington: Neah B.; Whidbey I. (UC 97657);

Friday Harbor (UC 132852).

New Records.

British Columbia: Ucluelet, 12 June 1909 (CAN 495). Whiffin Spit, 7 August 1949 (RFS 422).

Washington: Eagle Point, 7 July 1952 (RFS 46L). Entrance False Bay, 12 June 1949 (RFS 229, 230).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Phylum 2. PHAEOPHYCOPHYTA
(BROWN ALGAE)

Class 1. PHAEOPHYCEAE

Order 1. ECTOCARPALES

Family 1. ECTOCARPACEAE

Pylaiella littoralis (Lyngbye) Kjellman, 1872: 99.

References.

- Harvey, 1862, p. 167 (as *Ectocarpus littoralis*).
Kjellman, 1872, p. 99.
Saunders, 1901b, p. 419 (also as *P. l.* var. *macrocarpa*, *P. l.* var. *varia* and *P. l.* var. *densa*).
Setchell and Gardner, 1903, p. 235 (also as *P. l.* var. *opposita* f. *typica*, *P. l.* var. *opposita* f. *rupicola*, *P. l.* var. *opposita* f. *acuta*, *P. l.* var. *opposita* f. *rectangulans*, *P. l.* var. *firma*, *P. l.* var. *firma* f. *macrocarpa*, *P. l.* var. *varia*, *P. l.* var. *varia* f. *densa*); 1925, p. 402.
Collins, 1913, p. 106 (also as *P. l.* var. *firma* f. *macrocarpa* and *P. l.* var. *varia*).
Muenscher, 1917, p. 254.
Smith, 1944, p. 93.
Kylin, 1947b, p. 3.
Doty, 1947a, p. 32.

Distribution.

- Pacific Coast: Bering Sea to San Pedro, California.
Local: British Columbia: Juan de Fuca Strait; Port Renfrew; Victoria; Esquimalt; Departure B. (V 1458; CAN 730, 683).
Washington: LaConner; East Sound; Orcas I.; Puget Sound.

New Records.

- British Columbia: Sidney, 1917 (CAN 118). Ucluelet, 1909 (CAN 83, 710). Mayne I., June 1914 (CAN 105). Qualicum B. (CAN 704, 729). Kvarno I. (CAN 1621-24). Langara I., 27 July 1953 (RFS 975).

Habitat.

- On rocks, wood, and epiphytic on other algae in the middle and lower intertidal zones.

Pylaiella tenella* Setchell and Gardner, 1922d: 385.References.*

- Setchell and Gardner, 1922d, p. 385; 1925, p. 406.
 Smith, 1944, p. 94.

Distribution.

- Pacific Coast: Northern Washington to Monterey, California.
 Local: Washington: Neah B. (UC 207010, 402195, 401925).

Habitat.

- Epiphytic on *Pleurophycus* and leaves of *Zostera*.

Pylaiella washingtoniensis* Jao, 1937: 108.References.*

- Jao, 1937, p. 108.

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: Lake Washington Ship Canal, Seattle.

Habitat.

- On concrete in the upper intertidal zone.

Ectocarpus acutus* Setchell and Gardner var. *acutus*, 1922e: 404.References.*

- Setchell and Gardner, 1903, p. 237 (as *E. confervoides* f. *acuminatus*); 1922e, p. 404 (as *E. acutus*); 1925, p. 415 (as *E. acutus*).
 Collins, 1913, p. 106 (as *E. confervoides* f. *acuminatus*).
 Smith, 1944, p. 80 (as *E. acutus*).
 Sanborn and Doty, 1947, p. 27 (as *E. acutus*).
 Doty, 1947a, p. 31 (as *E. acutus*).

Distribution.

- Pacific Coast: Southern British Columbia to Carmel, California.
 Local: British Columbia: Victoria; Departure B. (V 1519; CAN 743).
 Washington: Whidbey I.; Puget Sound; Neah B. (UC 402120); Mukkaw B. (UC 395335).

Habitat.

- Epiphytic in *Desmarestia* and other larger brown algae in the lower intertidal zone.

Ectocarpus acutus* var. *haplogloiae* Doty, 1947a: 32.References.*

- Setchell and Gardner, 1922e, p. 404 (in part as *E. acutus*).
 Doty, 1947a, p. 32.

Distribution.

Pacific Coast: Northern Washington to Oregon.
Local: Washington: Neah Bay.

Habitat.

Epiphytic on *Haplogloia andersonii* in the lower intertidal zone.

Ectocarpus confervoides (Roth) LeJolis f. **confervoides**, 1863: 75.

References.

- Harvey, 1862, p. 167 (as *E. siliculosus* and *E. c. f. typicus*).
LeJolis, 1863, p. 75 (as *E. confervoides*).
Kuckuck, 1891, p. 69 (as *E. c. f. typicus*).
Setchell and Gardner, 1903, p. 237 (as *E. confervoides* and *E. c. f. typicus*); 1925, p. 412 (as *E. confervoides*), p. 414 (as *E. c. f. typicus*).
Collins, 1913, p. 106 (also as *E. siliculosus*).
Muenscher, 1917, p. 255 (also as *E. siliculosus*).
Sanborn and Doty, 1947, p. 27 (as *E. c. f. typicus*).
Doty, 1947a, p. 31 (as *E. c. f. typicus*).

Distribution.

Pacific Coast: Yakutat B., Alaska, to San Francisco, California.
Local: British Columbia: Port Renfrew; Esquimalt; Barkley Sound (UC 464047); Victoria (UC 99021).
Washington: Coupeville; Whidbey I. (UC 99022, 99020, 99015, 99014).

New Records.

British Columbia: Sidney, 1917 (V 1521); 1913 (V 1522; CAN 645).

Habitat.

On rocks, wood, and epiphytic on larger brown algae in the lower intertidal zone.

Ectocarpus corticulatus Saunders, 1898: 152.

References.

- Saunders, 1898, p. 152.
Setchell and Gardner, 1903, p. 238 (as *E. confervoides* f. *corticulatus*); 1925, p. 418.
Collins, 1913, p. 106 (as *E. confervoides* f. *corticulatus*).
Smith, 1944, p. 81.

Distribution.

Pacific Coast: Popof I., Alaska, to San Pedro, California.
Local: British Columbia: Ucluelet (V 1520; CAN 744).

Habitat.

Epiphytic on large brown algae and on leaves of *Zostera* in the lower intertidal zone.

Ectocarpus cylindricus Saunders, 1898: 150.

References.

Saunders, 1898, p. 150.

Setchell and Gardner, 1903, p. 239; 1922e, p. 415 (as *E. c. f. typicus* and *E. c. f. acmaeophilus*); 1925, p. 432.

Muenschler, 1917, p. 255.

Smith, 1944, p. 87.

Distribution.

Pacific Coast: Northern Washington to Carmel, California.

Local: Washington: Whidbey I. (UC 99025).

New Records.

Washington: Seattle, 7 August 1949 (REN 69).

Habitat.

Epiphytic on various larger brown and red algae and on shells in the lower intertidal and subtidal zones.

Ectocarpus dimorphus Silva, 1957: 42.

References.

Saunders, 1898, p. 155 (as *E. confervoides f. variabilis*).

Setchell and Gardner, 1903, p. 238 (as *E. variabilis* and *E. confervoides f. variabilis*); 1925, p. 414 (as *E. confervoides f. variabilis*).

Smith, 1942, p. 647; 1944, p. 85 (as *E. variabilis*).

Dawson, 1944a, p. 222 (as *E. confervoides f. variabilis*); 1945d, p. 64; 1951, p. 52 (as *E. variabilis*).

Doty, 1947a, p. 31 (as *E. variabilis*).

Silva, 1957, p. 42.

Distribution.

Pacific Coast: Hope I., British Columbia, to Mexico.

Local: Washington: Whidbey I.

New Records.

British Columbia: Hope I., 11 August 1953 (RFS 705H).

Habitat.

Epiphytic on larger brown algae, particularly the Laminales.

Ectocarpus granulosus (J. E. Smith) C. Agardh, 1828: 45.

References.

Agardh, 1828, p. 45.

Harvey, 1852, p. 141.

Setchell and Gardner, 1903, p. 238; 1925, p. 426.

References—Concluded

- Collins, 1913, p. 106.
 Muenscher, 1917, p. 256.
 Smith, 1944, p. 81.
 Dawson, 1945a, p. 26; 1945d, p. 64.
 Sanborn and Doty, 1947, p. 27.
 Doty, 1947a, p. 31.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Victoria; Juan de Fuca Strait
 (UC 763649).
 Washington: Near Tracyton; Puget Sound.

New Records.

- Washington: Point Caution (epiphytic on the stipe of
Nereocystis), 23 July 1952 (RFS 105L).

Habitat.

- On stones and epiphytic on other algae, including *Desmarestia*
ligulata, in the lower intertidal zone.

Ectocarpus mucronatus Saunders, 1898: 152.*References.*

- Saunders, 1898, p. 152.
 Setchell and Gardner, 1903, p. 238; 1925, p. 419.
 Collins, 1913, p. 106.
 Dawson, 1944a, p. 220.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Port Renfrew.
 Washington: Puget Sound.

Habitat.

- Epiphytic on other algae and on leaves of *Zostera*.

Ectocarpus oviger Harvey, 1862: 167.*References.*

- Harvey, 1862, p. 167.
 Setchell and Gardner, 1903, p. 238; 1925, p. 428.
 Smith, 1944, p. 82.
 Sanborn and Doty, 1947, p. 27.

Distribution.

- Pacific Coast: Southern British Columbia to Carmel, Cali-
 fornia.
 Local: British Columbia: Esquimalt; Victoria (UC 277384).

Habitat.

Epiphytic on the stipe of *Nereocystis*.

Ectocarpus pygmaeus Areschoug, in Kjellman, 1872: 85.

References.

Kjellman, 1872, p. 85.

Setchell and Gardner, 1925, p. 415 (as *E. confervoides* f. *pygmaeus*).

Smith, 1944, p. 84 (as *E. confervoides* f. *pygmaeus*).

Dawson, 1945d, p. 64 (as *E. confervoides* f. *pygmaeus*).

Doty, 1947a, p. 32.

Distribution.

Pacific Coast: Shumagin Is., Alaska, to Mexico.

Habitat.

Epiphytic on various larger brown algae in the lower intertidal and upper subtidal zones.

Ectocarpus terminalis Kützinger, 1845: 236.

References.

Kützinger, 1845, p. 236.

Setchell and Gardner, 1903, p. 237; 1925, p. 421.

Doty, 1947a, p. 32.

Distribution.

Pacific Coast: Unalaska I., Alaska, to Laguna, California.

Habitat.

Epiphytic on larger brown algae in the lower intertidal and upper subtidal zones.

Ectocarpus tomentosus (Hudson) Lyngbye, 1819: 132.

References.

Lyngbye, 1819, p. 132.

Saunders, 1901b, p. 417.

Setchell and Gardner, 1903, p. 238; 1925, p. 417.

Smith, 1944, p. 83.

Taylor, 1945, p. 79.

Distribution.

Pacific Coast: Kodiak I., Alaska, to Mexico.

Local: British Columbia: Victoria.

Washington: Neah B. (UC 273741, 395334).

New Records.

Washington: Golden Gardens, 9 August 1949 (REN 81).

Habitat.

Epiphytic on *Fucus* and *Pelvetia*.

Streblonema aecidioides f. pacificum Setchell and Gardner, 1922d: 395.*References.*

Setchell and Gardner, 1922d, p. 395; 1925, p. 450.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Victoria (UC 763647).

Washington: Neah B. (UC 207002).

Habitat.

Endophytic within *Hedophyllum sessile*.

Streblonema desmarestiae Gardner, 1940: 267.*References.*

Gardner, 1940, p. 267.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Kanaka B. (UC 510699).

Habitat.

Endophytic within *Desmarestia munda*.

Streblonema pacificum Saunders, 1901b: 417.*References.*

Saunders, 1901b, p. 417.

Setchell and Gardner, 1903, p. 239; 1925, p. 448.

Distribution.

Pacific Coast: Yakutat B., Alaska, to San Francisco, California.

Habitat.

Partially endophytic in larger brown algae.

Streblonema rugosum Setchell and Gardner, 1922d: 390.*References.*

Setchell and Gardner, 1922d, p. 390; 1925, p. 449.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Friday Harbor (UW 64691); San Juan I. (UC 207004, 402205, 395230).

Habitat.

Partially endophytic in *Alaria tenuifolia* f. *tenuifolia*.

Family 2. RALFSIACEAE

Ralfsia fungiformis (Gunnerus) Setchell and Gardner, 1924a: 11.*References.*

- Harvey, 1852, p. 130 (as *R. deusta*).
 Setchell and Gardner, 1903, p. 253 (as *R. deusta*); 1924a, p. 11; 1925, p. 499.
 Collins, 1913, p. 108 (as *R. deusta*).
 Sanborn and Doty, 1947, p. 27.
 Doty, 1947a, p. 33.

Distribution.

- Pacific Coast: Bering Sea to Oregon.
 Local: British Columbia: Departure B. (CAN 615); Victoria (UC 277418).

Habitat.

On rocks in the middle and lower intertidal zones.

Ralfsia pacifica Hollenberg, in Smith, 1944: 95.*References.*

- Setchell and Gardner, 1903, p. 253 (as *R. verrucosa*); 1925, p. 497 (as *R. verrucosa*).
 Muenscher, 1917, p. 273 (as *R. verrucosa*).
 Smith, 1944, p. 95.
 Dawson, 1944a, p. 222.
 Sanborn and Doty, 1947, p. 27 (as *R. verrucosa*).
 Doty, 1947a, p. 33.
 Rigg and Miller, 1949, p. 331 (as *R. verrucosa*).

Distribution.

- Pacific Coast: Unalaska I., Alaska, to Mexico.
 Local: Washington: Whidbey I. (UC 99507); Neah Bay.

New Records.

- British Columbia: Departure B., 1908 (V 1281). Queen Charlotte Is. (CAN 1209).
 Washington: American Camp Beach, 8 July 1952 (RFS 70L).

Habitat.

On rocks and shells in the middle and lower intertidal zones.

Order 2. SPHACELARIALES

Family 1. SPHACELARIACEAE

Sphacelaria racemosa Greville, 1824: 96.*References.*

- Greville, 1824, p. 96.
 Setchell and Gardner, 1903, p. 239 (as *S. racemosa* var. *arctica*); 1925, p. 393.

References—Concluded

Muenschel, 1917, p. 257.

Doty, 1947a, p. 33.

Distribution.

Pacific Coast: Bering Sea to Oregon.

Local: Washington: Whidbey I. (UC 99628).

New Records.

Washington: West Beach, 20 June 1951 (REN 594).

Habitat.

On rocks, shells and epiphytic on other algae in the lower intertidal and upper subtidal zones.

Sphacelaria subfusca* Setchell and Gardner, 1924a: 1.References.*

Collins, 1913, p. 106 (as *S. fusca*).

Setchell and Gardner, 1924a, p. 1; 1925, p. 395.

Distribution.

Pacific Coast: Sitka, Alaska, to Redondo, California.

Local: British Columbia: Vancouver I.

Habitat.

Epiphytic on various other algae.

Order 3. **DICTYOTALES**Family 1. **DICTYOTACEAE*****Syringoderma abyssicola* (Setchell and Gardner) Levring, 1940: 8.***References.*

Setchell and Gardner, 1924a, p. 11 (as *Chlanidophora abyssicola*); 1925, p. 658 (as *Chlanidophora abyssicola*).

Levring, 1940, p. 8.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Griffin B. (UC 229737).

New Records.

Washington: Eagle Point, 3 July 1952 (RFS 59L). Hein Bank, 10 August 1954 (RFS 186L).

Habitat.

On shells and stones in the subtidal zone at a depth of 5 to 15 fathoms.

Order 4. CHORDARIALES

Family 1. MYRIONEMATACEAE

Myrionema compsonematoides Setchell and Gardner, 1922a: 343.

References.

Setchell and Gardner, 1922a, p. 343; 1925, p. 467.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Friday Harbor (UC 207019).

Habitat.

Epiphytic on *Laminaria complanata*.

Myrionema foecundum f. **ramulosum** Setchell and Gardner, 1922a: 337.

References.

Setchell and Gardner, 1922a, p. 337; 1925, p. 462.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Friday Harbor (UC 207018).

Habitat.

Epiphytic on the pneumatocyst of *Nereocystis*.

Myrionema foecundum f. **simplicissimum** Setchell and Gardner, 1922a: 336.

References.

Setchell and Gardner, 1903, p. 249 (as *M. strangulans*); 1922a, p. 336; 1925, p. 461.

Distribution.

Pacific Coast: Kodiak I., Alaska, to Central California.

Local: British Columbia: Victoria.

Washington: Whidbey I. (UC 207022); East Sound.

Habitat.

Epiphytic on the sporophylls of *Nereocystis* and on other brown algae.

Myrionema globosum f. **affine** Setchell and Gardner, 1922a: 342.

References.

Setchell and Gardner, 1922a, p. 342; 1925, p. 471.

Distribution.

Pacific Coast: Sitka, Alaska, to Point Carmel, California.

Habitat.

Epiphytic on the leaves of *Zostera*.

Myrionema primarium Setchell and Gardner, 1922a: 334.*References.*

Setchell and Gardner, 1922a, p. 335 (as *M. p. f. acuminatum*),
p. 338 (as *M. foecundum f. divergens* and *M. f. f. majus*),
p. 334; 1925, p. 457 (as *M. p. f. acuminatum*), p. 463
(as *M. foecundum f. divergens* and *M. f. f. majus*),
p. 456.

Smith, 1944, p. 105.

Sanborn and Doty, 1947, p. 28.

Doty, 1947a, p. 34.

Distribution.

Pacific Coast: Alaska to Carmel, California.

Local: British Columbia: Port Renfrew.

Washington: Neah B. (UC 207012); Tacoma.

Habitat.

Epiphytic on larger algae, chiefly members of the Laminariales.

Myrionema strangulans Greville, 1827: 300.*References.*

Greville, 1827, p. 300.

Setchell and Gardner, 1903, p. 249; 1925, p. 471.

Collins, 1913, p. 108.

Muenschler, 1917, p. 272.

Kylin, 1934, p. 5.

Smith, 1944, p. 106.

Distribution.

Pacific Coast: Sitka, Alaska, to Carmel, California.

Local: British Columbia: Victoria.

Washington: Whidbey I. (UC 99351); East Sound
(UC 396657).

Habitat.

Epiphytic on species of *Ulva* and larger brown algae in the lower intertidal zone.

Compsonema sessile Setchell and Gardner, 1922b: 358.*References.*

Setchell and Gardner, 1922b, p. 358; 1925, p. 474.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Neah B. (UC 207039).

Habitat.

Epiphytic on *Hedophyllum sessile*.

Compsonema sporangiiferum Setchell and Gardner, 1922b: 357.

References.

Setchell and Gardner, 1922b, p. 357; 1925, p. 481.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Neah B. (UC 207038).

Habitat.

Epiphytic on the pneumatocyst of *Nereocystis*.

Family 2. ELACHISTACEAE

Elachistea fucicola (Velley) Areschoug, 1842: 235.

References.

Areschoug, 1842, p. 235.

Setchell and Gardner, 1903, p. 249; 1925, p. 503.

Kylin, 1937, p. 12.

Sanborn and Doty, 1947, p. 27.

Doty, 1947a, p. 33.

Distribution.

Pacific Coast: Sitka, Alaska, to Oregon.

Habitat.

Epiphytic on species of *Fucus* in the lower intertidal zone.

Family 3. CORYNOPHLAEACEAE

Leathesia difformis (Linnaeus) Areschoug, 1847: 376.

References.

Areschoug, 1847, p. 376.

Saunders, 1901b, p. 423.

Setchell and Gardner, 1903, p. 249; 1924a, p. 3 (as *L. amplissima*); 1925, p. 513 (as *L. amplissima*), p. 511.

Collins, 1913, p. 108.

Muenschler, 1917, p. 271.

Smith, 1944, p. 114.

Sanborn and Doty, 1947, p. 27.

Doty, 1947a, p. 34.

Rigg and Miller, 1949, p. 331.

Dawson, 1953b, p. 325.

Distribution.

Pacific Coast: Bering Sea to Mexico.

Local: British Columbia: Victoria; Departure B. (V 1264; CAN 64, 703); Qualicum B. (UC 90743); Clayoquot Sound (UC 464048).

Washington: Tracyton (UC 763484); Whidbey I. (UC 99305); Neah B.; Rosario Beach (UC 910613, 910614).

New Records.

British Columbia: Qualicum Bay (CAN 123). Mayne I., June 1914 (CAN 122). N. Deer I., 14 August 1947 (RFS 1002L); 4 July 1947 (RFS 1017L). Sidney, 1913 (V 1265; CAN 647).

Washington: Rocky B., 12 July 1949 (RFS 427).

Habitat.

On rocks and epiphytic on other algae, in the intertidal zone.

Family 4. CHORDARIACEAE

Eudesme virescens (Carmichael) J. Agardh, 1880: 31.

References.

J. Agardh, 1880, p. 31.

Setchell and Gardner, 1903, p. 249; 1924a, p. 11 (as *Aegira virescens*); 1925, p. 547 (as *Aegira virescens*).

Kylin, 1933, p. 56; 1940, p. 31.

Dawson, 1945e, p. 102 (as *Aegira virescens*).

Distribution.

Pacific Coast: Shumagin Is., Alaska, to Southern California.

Local: British Columbia: Vancouver I. (UC 276590).

Washington: East Sound (UC 392810, 276889).

Habitat.

On rocks and epiphytic on *Zostera* in the lower intertidal and upper subtidal zones.

Haplogloia andersonii (Farlow) Levring, 1939: 50.

References.

Setchell and Gardner, 1903, p. 250 (as *Mesogloia andersonii*); 1925, p. 556 (as *Myriogloia andersonii*).

Collins, 1913, p. 108 (as *Mesogloia andersonii*).

Muenschel, 1917, p. 282 (as *Mesogloia andersonii*).

Levring, 1939, p. 50.

Kylin, 1940, p. 21.

Smith, 1944, p. 117.

Dawson, 1945d, pp. 60 and 64.

Sanborn and Doty, 1947, p. 28.

Doty, 1947a, p. 34.

Distribution.

Pacific Coast: Sitka, Alaska, to Mexico.

Local: British Columbia: Ucluelet (CAN 716, 1145, 1179); Port Renfrew (UC 273861); Qualicum B. (UC 90943).

Washington: Whidbey I. (UC 99327); San Juan I.

New Records.

British Columbia: Qualicum B. (V 1271). Comox, July 1915 (V 1272). Queen Charlotte Is., 1911 (V 1273).
 Washington: American Camp Beach, 5 July 1952 (RFS 9L).
 Point Caution, 25 May 1949 (RFS 414). Minnesota
 Reef, 28 May 1949 (RFS 415). Goose I., 27 May 1949
 (RFS 416). Mukkaw B., 30 May 1948 (REN 286).

Habitat.

On rocks in the lower intertidal zone.

Haplogloia kuckuckii Kylin, 1940: 21.*References.*

Saunders, 1901b, p. 424 (as *Liebmannia*).
 Kuckuck, 1929, p. 61 (as *Chordaria andersonii*).
 Kylin, 1940, p. 21.

Distribution.

Pacific Coast: Sitka, Alaska, to Northern Washington.
 Local: Washington: False B.; Whidbey I.; Friday Harbor.

Habitat.

On rocks in the lower intertidal zone.

Chordaria dissessa Setchell and Gardner, 1924a: 8.*References.*

Setchell and Gardner, 1903, p. 249 (as *Castagnea divaricata*);
 1924a, p. 8; 1925, p. 574.
 Muenscher, 1917, p. 282 (as *Castagnea divaricata*).
 Kylin, 1940, p. 41.

Distribution.

Pacific Coast: Northern Washington.
 Local: Washington: East Sound (UC 99330).

New Records.

Washington: San Juan I., July 1925 (UW 64335).

Habitat.

Epiphytic on *Zostera* in the middle and lower intertidal zones.

Saundersella simplex (Saunders) Kylin, 1940: 42.*References.*

Saunders, 1901b, p. 423 (as *Mesogloia simplex*).
 Setchell and Gardner, 1903, p. 250 (as *Mesogloia simplex*);
 1924a, p. 12 (as *Gobia simplex*); 1925, p. 576 (as *Gobia simplex*).
 Collins, 1913, p. 108 (as *Mesogloia simplex*).
 Kylin, 1940, p. 42.

Distribution.

Pacific Coast: Cook Inlet, Alaska, to Southern British Columbia.

Local: British Columbia: Port Renfrew (UC 99329); Gonzales Point.

New Records.

British Columbia: Striae Point, 25 July 1953 (RFS 809).

Habitat.

Epiphytic on *Heterochordaria abietina*.

Heterochordaria abietina (Ruprecht) Setchell and Gardner, 1924a: 6.

References.

Setchell and Gardner, 1903, p. 251 (as *Chordaria abietina*); 1924a, p. 6; 1925, p. 550.

Collins, 1913, p. 108 (as *Chordaria abietina*).

Muenschler, 1917, p. 282 (as *Chordaria abietina*).

Kylin, 1940, p. 42.

Smith, 1944, p. 98.

Sanborn and Doty, 1947, p. 29.

Doty, 1947a, p. 29.

Rigg and Miller, 1949, p. 331 (as *Chordaria abietina*).

Distribution.

Pacific Coast: Bering Sea to Point Conception, California.

Local: British Columbia: Victoria (CAN 99, 1151, 1641; UC 763518, 277441); Port Renfrew; Sooke (UC 464041).

Washington: Neah B.; Whidbey I. (UC 98729).

New Records.

British Columbia: Parsons Spit, 24 August 1945 (RFS 244). Muir Creek, 11 April 1925 (V 1261). Sidney, 1913 (V 1263).

Washington: Turn Point, 6 July 1952 (RFS 11L). False Bay, 29 May 1949 (RFS 335); 6 July 1948 (REN 289). Minnesota Reef, 28 May 1949 (RFS 344). Mukkaw B., 21 August 1949 (REN 201).

Habitat.

On rocks in the middle and lower intertidal zones.

Order 5. DESMARESTIALES

Family 1. DESMARESTIACEAE

Desmarestia farcta Setchell and Gardner, 1924a: 7.

References.

Setchell and Gardner, 1924a, p. 7; 1925, p. 562.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Argyle (UC 276880); Griffin B. (UC 229730, 266466).

Habitat.

Probably subtidal.

Desmarestia foliacea Pease, 1920: 322.*References.*

Pease, 1917, p. 388 (as *D. tabacoides*); 1920, p. 322.

Setchell and Gardner, 1925, p. 569.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: San Juan Is.; Turn I. (UC 236977);
Peavine Pass (UC 276883, 276601, 276600, 276884,
276589).

New Records.

Washington: Smith I., 28 July 1949 (RFS 135). Shaw I.,
25 June 1952 (RFS 531). Peavine Pass, July 1925
(UW 63939).

Habitat.

On rocks in the upper subtidal zone.

Desmarestia herbacea Lamouroux, 1813: 25.*References.*

Lamouroux, 1813, p. 25.

Harvey, 1852, p. 78 (as *D. ligulata*); 1862, p. 164 (as *D. ligulata*).

Setchell and Gardner, 1903, p. 247 (as *D. ligulata* f. *herbacea*);
1925, p. 566; 1930, p. 145.

Collins, 1913, p. 107 (as *D. ligulata* f. *herbacea*).

Pease, 1917, p. 389; 1920, p. 340.

Smith, 1944, p. 121.

Taylor, 1945, p. 108.

Dawson, 1945d, p. 64.

Sanborn and Doty, 1947, p. 30.

Doty, 1947a, p. 35.

Distribution.

Pacific Coast: Kodiak I., Alaska, to Mexico.

Local: British Columbia: Port Renfrew; Burrard Inlet;
Oak B.; Esquimalt (UC 98887, 98901).

Washington: Whidbey I. (UW 64647; UC 98902,
98886); Neah B. (UC 910640).

New Records.

British Columbia: Comox, 1915 (CAN 1661). Departure B., 18 August 1908 (CAN 1664, 1665, 1674). Ucluelet, 1909 (CAN 1175, 1675). Beacon Hill (CAN 737). Brockton Point, 15 April 1949 (RFS 119 and 133).

Washington: False Bay, 29 May 1949 (RFS 124); 6 July 1948 (REN 290). American Camp Beach, 5 July 1952 (RFS 530 and 546). West Sound, 28 July 1903 (UW 64646). Friday Harbor, 20 July 1904 (UW 64509, 64645). Channel Rocks, 21 May 1901 (UW 64649).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Desmarestia intermedia Postels and Ruprecht, 1840: 13.

References.

Postels and Ruprecht, 1840, p. 13.

Harvey, 1852, p. 78 (as *D. aculeata*); 1862, p. 164 (as *D. aculeata*).

Bailey and Harvey, 1862, p. 160.

Saunders, 1901b, p. 422 (as *D. aculeata*).

Setchell and Gardner, 1903, p. 246 (in part as *D. aculeata*); 1925, p. 564.

Pease, 1917, p. 385 (as *D. aculeata*).

Muenschel, 1917, p. 288 (as *D. aculeata*).

Connell, 1928, p. 100.

Sanborn and Doty, 1947, p. 29.

Doty, 1947a, p. 35.

Distribution.

Pacific Coast: Bering Sea to Oregon.

Local: British Columbia: Victoria (CAN 574, 1629, 1631, 1656). Esquimalt; Horswell Channel (UC 90744).

Washington: San Juan I. (UC 276879); Puget Sound; North B. (UC 763536); Port Townsend (UC 98860); Whidbey I. (UC 98856, 98871).

New Records.

British Columbia: Qualicum B., 25 July 1887 (CAN 1680). Departure B., 1887 (CAN 579, 736); 24 June 1908 (CAN 1173, 1679). Sidney, 1913 (CAN 1659); 1917 (V 1539; CAN 641, 1630); 20 October 1916 (CAN 1657). Whiffin Spit, 30 December 1947 (RFS 130). Comox, 1915 (CAN 1660).

Washington: Minnesota Reef, 28 May 1949 (RFS 128 and 129). West Beach, 24 August 1949 (REN 225). Kanaka B., July 1925 (UBC 270; UW 138783). Deer Harbor, 7 January 1904 (UW 64654). Sucia Is., 16 July 1904 (UW 64653). Friday Harbor, 5 July 1904 (UW 64655-6).

Habitat.

On rocks in the upper subtidal zone.

Desmarestia latissima Setchell and Gardner, *in* Pease, 1920: 319.

References.

Pease, 1920, p. 319.

Setchell and Gardner, 1925, p. 568.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: San Juan Is. (UC 396594); Canoe I. (UC 236978); Argyle (UC 395322); English Camp (UC 99454).

Habitat.

On rocks in quiet bays in the upper subtidal zone.

Desmarestia ligulata (Lightfoot) Lamouroux, 1813: 25.

References.

Lamouroux, 1813, p. 25.

Harvey, 1862, p. 164.

Setchell and Gardner, 1903, p. 247; 1925, p. 566.

Pease, 1917, p. 388; 1920, p. 314.

Muenschler, 1917, p. 258.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Burrard Inlet; Oak B. (UC 763483).
Washington: San Juan I.

New Records.

British Columbia: Ucluelet, 5 July 1909 (CAN 577, 668).

Washington: American Camp Beach, 5 July 1952 (RFS 29L, 526, 544). Kanaka B., July 1925 (UW 63938).

Habitat.

On rocks and shells in the lower intertidal and upper subtidal zones.

Desmarestia media var. **tenuis** Setchell and Gardner, 1924a: 7.

References.

Harvey, 1852, p. 77 (as *D. viridis*); 1862, p. 164 (as *D. viridis*).

Setchell and Gardner, 1903, p. 246 (as *D. aculeata* f. *media*); 1924a, p. 7; 1925, p. 561.

Collins, 1913, p. 107 (as *D. aculeata* f. *media*).

Distribution.

Pacific Coast: Juneau, Alaska, to Northern Washington.

Local: British Columbia: Esquimalt.

Washington: Minnesota Reef; San Juan I. (UW 63940); Puget Sound; False B. (UC 233576); Kanaka B. (UC 276885).

New Records.

British Columbia: Mayne I., 1914 (CAN 1658). Beacon Hill, 15 June 1908 (CAN 576, 1172). Ucluelet, 10 May 1909 (CAN 1177, 1186). Sidney, 1913 (V 1536).

Washington: Point Caution, 25 May 1949 (RFS 127). False B., 29 May 1949 (RFS 131 and 132). Shaw I., 25 June 1952 (RFS 528). Indian Cove, 25 June 1952 (RFS 529).

Habitat.

On stones in the upper subtidal zone.

Desmarestia munda Setchell and Gardner, 1924a: 7.

References.

Setchell and Gardner, 1903, p. 247 (as *D. ligulata* f. *herbacea*); 1924a, p. 7; 1925, p. 567.

Smith, 1944, p. 121.

Dawson, 1944d, p. 102; 1951, p. 52.

Taylor, 1945, p. 108.

Sanborn and Doty, 1947, p. 30.

Doty, 1947a, p. 35.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Northern British Columbia to Mexico.

Local: British Columbia: Port Renfrew; Esquimalt; Victoria; Oak B.; Burrard Inlet.

Washington: Neah B.; Puget Sound; Canoe I. (UC 233573); Whidbey I. (UC 98885); Rosario Beach (UC 910642, 910641); Peavine Pass (UC 233572).

New Records.

British Columbia: Ucluelet, 1909 (V 1537). Thomas Point, 16 July 1947 (RFS 123). Hopetown Passage, 14 July 1946 (RFS 134). Mazzaredo Is., 26 July 1953 (RFS 216 H).

Washington: False Bay, 10 June 1949 (RFS 122). Shaw I., 25 June 1952 (RFS 527).

Habitat.

On rocks in the lower intertidal and the upper subtidal zones and to a depth of 10 fathoms.

**Desmarestia viridis* (Müller) Lamouroux, 1813: 45.

References.

- Lamouroux, 1813, p. 45.
 Setchell and Gardner, 1903, p. 245.
 Smith, 1944, p. 119.

Distribution.

- Pacific Coast: Alaska to Carmel, California.
 Local: British Columbia: Esquimalt.

New Records.

- British Columbia: Klucksiwi R., 14 July 1946 (RFS 121).
 Brockton Point, 15 April 1949 (RFS 136 and 137).
 Oak B., 27 March 1897 (V 1532).
 Washington: Friday Harbor, 5 July 1904 (UW 64652).
 Channel Rocks, 21 May 1901 (UW 64651). Ballard
 Beach, 10 April 1904 (UW 64800).

Habitat.

- On rocks in the lower intertidal and upper subtidal zones.

Order 6. DICTYOSIPHONALES

Family 1. STRIARIACEAE

Stictyosiphon tortilis (Ruprecht) Reinke, 1889: 55.

References.

- Harvey, 1862, p. 167 (as *Striaria attenuata*).
 Reinke, 1889, p. 55.
 Setchell and Gardner, 1903, p. 245 (as *Phloeospora tortilis*
 and *Striaria attenuata*); 1925, p. 529.
 Muenscher, 1917, p. 257 (as *Striaria attenuata*).
 Smith, 1944, p. 133.

Distribution.

- Pacific Coast: Port Clarence, Alaska, to Monterey, California.
 Local: British Columbia: Vancouver Island.
 Washington: Orcas I.

Habitat.

- On rocks in the subtidal zone.

* There is some question whether the specimens on this Coast regarded as *Desmarestia viridis* are distinct from *D. media* var. *tenuis*. The whole genus, and particularly the filiform section, is in need of a careful study. The specimens referred to here are sufficiently close to *D. viridis* to warrant retention as such until a monographic study has been completed.

Family 2. PUNCTARIACEAE

Punctaria expansa Setchell and Gardner, 1924a: 5.*References.*

Setchell and Gardner, 1903, p. 240 (in part as *P. latifolia*);
1924a, p. 5; 1925, p. 521.

Muenschler, 1917, p. 268 (as *P. latifolia*).

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Vancouver I.

Washington: Penn Cove, Whidbey I. (UC 99457).

New Records.

British Columbia: Dunsmuir Is., 1 May 1954 (RFS 208L).

Habitat.

On rocks or epiphytic on other algae in sheltered bays in the lower intertidal zone, frequently floating.

Punctaria hesperia Setchell and Gardner, 1924a: 3.*References.*

Setchell and Gardner, 1924a, p. 3; 1925, p. 517.

Smith, 1944, p. 124.

Distribution.

Pacific Coast: Southern British Columbia to San Pedro, California.

Local: British Columbia: Victoria (UC 751238).

Habitat.

Epiphytic on *Phyllospadix* and *Zostera*.

Punctaria orbiculata Jao, 1937: 109.*References.*

Jao, 1937, p. 109.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: False B.

Habitat.

Epiphytic on *Zostera* in the lower intertidal zone.

Soranthra ulvoidea f. **difformis** Setchell and Gardner, 1903: 244.*References.*

Setchell and Gardner, 1903, p. 244; 1925, p. 526.

Distribution.

Pacific Coast: Bering Sea to Northern Washington.
Local: Washington: Cape Flattery.

Habitat.

Epiphytic on species of *Rhodomela* and *Odonthalia*.

Soranthera ulvoidea Postels and Ruprecht f. **ulvoidea**, 1840: 19.

References.

- Postels and Ruprecht, 1840, p. 19 (as *S. ulvoidea*).
Harvey, 1852, p. 117 (as *S. ulvoidea*).
Saunders, 1901b, p. 422 (as *S. ulvoidea*).
Setchell and Gardner, 1903, p. 244 (as *S. ulvoidea*); 1925, p. 525 (as *S. ulvoidea* and as *S. u. f. typica*).
Collins, 1913, p. 107 (as *S. ulvoidea*).
Muenscher, 1917, p. 269 (as *S. ulvoidea*).
Angst, 1926, p. 159; 1927a, p. 265 (as *S. ulvoidea*).
Smith, 1944, p. 127 (as *S. ulvoidea*).
Sanborn and Doty, 1947, p. 28 (as *S. ulvoidea*).
Doty, 1947a, p. 36 (as *S. ulvoidea*).
Rigg and Miller, 1949, p. 331 (as *S. ulvoidea*).

Distribution.

Pacific Coast: Bering Sea to Southern California.
Local: British Columbia: Port Renfrew; Victoria (UC 99608).
Washington: Whidbey I. (UC 99607); Friday Harbor (UW 64187); Puget Sound (UW 63542); Neah B. (UW 64232; UC 402204).

New Records.

British Columbia: Masset, 30 July 1948 (RFS 1005L).
Sandstone Creek, 10 July 1925 (V 1286). N. Deer I., 4 July 1947 (RFS 1015L). Klucksiwi R., 14 July 1946 (RFS 353, 1000L). Sidney, 1914 (CAN 1152).
Washington: Turn Point, 6 July 1952 (RFS 71L). False B., 29 May 1949 (RFS 326 and 327). Rocky B., 7 July 1949 (RFS 423). Smith I., 28 July 1949 (RFS 424). Minnesota Reef, 28 May 1949 (RFS 425).

Habitat.

Epiphytic on species of *Rhodomela* and *Odonthalia*.

Myelophycus intestinale Saunders, 1901b: 420.

References.

- Saunders, 1901b, p. 420.
Setchell and Gardner, 1903, p. 241; 1925, p. 527.
Muenscher, 1917, p. 271.

Distribution.

Pacific Coast: Shumagin Is., Alaska, to Northern Washington.

Local: British Columbia: Ucluelet (UC 277749); Clayoquot Sound (UC 464045).

Washington: Fairhaven (UC 99342); Whidbey I. (UC 99343); Puget Sound.

New Records.

British Columbia: Sidney, 1913 (CAN 1189, 1190).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Scytosiphon bullosus Saunders, 1898: 163.*References.*

Saunders, 1898, p. 163.

Setchell and Gardner, 1903, p. 242 (as *Colpomenia sinuosa* f. *deformans*); 1925, p. 542 (as *Colpomenia sinuosa* f. *deformans*).

Dawson, 1944a, p. 233 (as *Colpomenia sinuosa* f. *deformans*).

Smith, 1944, p. 130.

Taylor, 1945, p. 84 (as *Colpomenia sinuosa* f. *deformans*).

Doty, 1947a, p. 37.

Distribution.

Pacific Coast: Cook Inlet, Alaska, to Mexico.

New Records.

Washington: S. False B., 5 August 1952 (RFS 124L).

Habitat.

On rocks and epiphytic on other algae.

Scytosiphon lomentaria (Lyngbye) J. Agardh f. *lomentaria*, 1848: 126.*References.*

Agardh, 1848, p. 126 (as *S. lomentaria*).

Harvey, 1852, p. 98 (as *Chorda lomentaria*); 1862, p. 162 (as *Chorda lomentaria*).

Rosenvinge, 1893, p. 863 (as *S. l. f. typica*).

Saunders, 1901b, p. 421 (as *S. lomentaria*).

Setchell and Gardner, 1903, p. 243 (as *S. lomentaria*); 1925, p. 533 (as *S. l. f. cylindricus major*), p. 531 (as *S. lomentaria* and *S. l. f. typica*).

Collins, 1913, p. 107 (as *S. lomentaria*).

Muenschler, 1917, p. 271 (as *S. lomentaria*).

Smith, 1944, p. 129 (as *S. lomentaria* and *S. l. f. typica*).

Sanborn and Doty, 1947, p. 29 (as *S. l. f. typica*).

Doty, 1947a, p. 37 (as *S. l. f. typica*).

Dawson, 1945d, p. 64; 1946, p. 36 (as *S. l. f. typica*); 1951, p. 52 (as *S. lomentaria*).

Distribution.

Pacific Coast: Bering Sea to Mexico.

Local: British Columbia: Port Renfrew; Esquimalt; Departure B. (CAN 722; V 1282); Amphitrite Point (UC 277756).

Washington: Friday Harbor; San Juan I; Whidbey I. (UC 99589); Puget Sound; Minnesota Reef (UC 763480, 278297).

New Records.

British Columbia: Point Holmes, 16 June 1893 (CAN 721). Ucluelet, 1909 (CAN 100). Sidney, 1 October 1917 (V 1284). Oak B., 27 March 1897 (V 1283). Mayne I., June 1914 (CAN 121). Klucksiwi R., 14 July 1946 (RFS 331). Queen Charlotte Is., 1911 (V 1285). Second Beach, 18 April 1949 (RFS 191, 1014L). Brockton Point, 15 April 1949 (RFS 618). N. Deer I., August 1947 (RFS 1007L); 5 July 1947 (RFS 1016L).

Washington: Goose I., 27 May 1949 (RFS 328). Mukkaw B., 30 May 1948 (REN 276). Seattle, 23 May 1948 (REN 288).

Habitat.

On rocks in the lower intertidal zone.

Petalonia debilis (C. Agardh) Derbès and Solier f. ***debilis***, 1850: 265.

References.

Derbès and Solier, 1850, p. 265.

Fries, 1835, p. 321 (as *Ilea fascia*).

Harvey, 1862, p. 167 (as *Laminaria fascia*).

Setchell and Gardner, 1903, p. 243 (as *Phyllitis fascia*); 1924a, p. 12 (as *Ilea fascia* f. *debilis* and *I. f. f. typica*); 1925, p. 535 (as *Ilea fascia*), p. 537 (as *Ilea fascia* f. *debilis* and *I. f. f. typica*).

Collins, 1913, p. 107 (as *Phyllitis fascia*).

Meunscher, 1917, p. 267 (as *Ilea fascia*).

Smith, 1944, p. 126 (as *Ilea fascia*).

Dawson, 1945d, p. 60 (as *Ilea fascia*).

Sanborn and Doty, 1947, p. 29 (as *Ilea fascia*).

Doty, 1947a, p. 36 (as *Ilea fascia*).

Silva, 1952, p. 299 (as *Petalonia debilis*).

Distribution.

Pacific Coast: Unalaska I., Alaska, to Mexico.

Local: British Columbia: Esquimalt; Comox (UC 633265).

Washington: Whidbey I. (UC 99415); San Juan I. (UC 276888); Puget Sound.

New Records.

British Columbia: Beacon Hill, July 1913 (V 1479).

Washington: Ballard Beach, 10 April 1904 (UW 63796).

American Camp Beach, 5 July 1952 (RFS 13L). Mukkaw
B., 30 May 1948 (REN 281).

Habitat.

On rocks and epiphytic on leaves of *Phyllospadix* in the lower
intertidal zone.

Colpomenia sinuosa (Roth) Derbès and Solier f. **sinuosa**, 1856: 11.

References.

Derbès and Solier, 1856, p. 11 (as *C. sinuosa*).

Saunders, 1901b, p. 421 (as *C. sinuosa*).

Setchell and Gardner, 1903, p. 242 (as *C. sinuosa*); 1925,
p. 539 (as *C. sinuosa*); 1930, p. 143 (as *C. sinuosa*).

Collins, 1913, p. 107 (as *C. sinuosa*).

Muenschler, 1917, p. 271 (as *C. sinuosa*).

Smith, 1944, p. 128 (as *C. sinuosa*).

Dawson, 1944a, p. 232 (as *C. sinuosa*); 1951, p. 52 (as *C.*
sinuosa).

Taylor, 1945, p. 83 (as *C. sinuosa*).

Sanborn and Doty, 1947, p. 29 (as *C. sinuosa*).

Doty, 1947a, p. 36 (as *C. sinuosa*).

Rigg and Miller, 1949, p. 331 (as *C. sinuosa*).

Distribution.

Pacific Coast: Yakutat B., Alaska, to Mexico.

Local: British Columbia: Port Renfrew (UC 763815).

Washington: Neah B., (UC 273742); Puget Sound;
Cattle Point (UC 402105).

New Records.

British Columbia: Beacon Hill, 1887 (CAN 119, 630, 70).
Esquimalt, 30 May 1908 (V 1249; CAN 631). Thomas
Point, 16 July 1947 (RFS 333). N. Deer I., 7 September
1947 (RFS 347).

Washington: Waadah I., 7 August 1952 (RFS 135L). Minne-
sota Reef, 28 May 1949 (RFS 332). Rocky B., 7 July
1949 (RFS 429). Lincoln Park, 8 August 1949 (REN
107). Golden Gardens, 5 August 1949 (REN 376).

Habitat.

On rocks and epiphytic on other algae in the middle and
lower intertidal zones.

Colpomenia sinuosa f. **tuberculata** (Saunders) Setchell and Gardner,
1903: 242.

References.

Setchell and Gardner, 1903, p. 242; 1924b, p. 725; 1925, p. 541.

Dawson, 1944a, p. 233.

Distribution.

Pacific Coast: Unalaska I., Alaska, to Mexico.

Local: Washington: Whidbey I. (UC 98808, 395312).

Habitat.

On rocks and epiphytic on other algae in the middle intertidal zone.

Family 3. DICTYOSIPHONACEAE

Coilodesme bulligera Stroemfelt, 1886: 48.*References.*

Stroemfelt, 1886, p. 48.

Setchell and Gardner, 1903, p. 240 (in part); 1925, p. 581.

Muenschler, 1917, p. 270.

Sanborn and Doty, 1947, p. 28.

Doty, 1947a, p. 38.

Distribution.

Pacific Coast: Shumagin Is., Alaska, to Oregon.

Local: Washington: Whidbey I. (UC 98777); Shaw I.

New Records.

British Columbia: Klucksiwi R., 14 July 1946 (RFS 116).
Sidney, 1913 (V 1248).

Washington: False B., 29 May 1949 (RFS 118); 12 June 1949
(RFS 411); 26 August 1954 (RFS 204L).

Habitat.

On rocks in the lower intertidal zone.

Coilodesme californica (Ruprecht) Kjellman, 1889a: 4.*References.*

Kjellman, 1889a, p. 4.

Saunders, 1901b, p. 422.

Setchell and Gardner, 1903, p. 241; 1925, p. 579.

Setchell, 1912a, p. 232 (as *C. amplissima*).

Collins, 1913, p. 106.

Muenschler, 1917, p. 270.

Connell, 1928, p. 100.

Smith, 1944, p. 131.

Dawson, 1945b, p. 24.

Sanborn and Doty, 1947, p. 28.

Doty, 1947a, p. 39.

Distribution.

Pacific Coast: Queen Charlotte Strait, British Columbia, to La Jolla, California.

Local: British Columbia: Port Renfrew; Esquimalt (UC 98784); Victoria (V 1247; UBC 227; UW 63895, 137764; UC 402104); Page Lagoon; Departure B.

Washington: Friday Harbor (UW 64612-3; UC 763645); Whidbey I. (UC 98792); Puget Sound.

New Records.

British Columbia: Klucksiwi R., 29 June 1953 (RFS 985).

Washington: Goose I., 27 May 1949 (RFS 117). American Camp Beach, 5 July 1952 (RFS 23L).

Habitat.

Epiphytic on *Cystoseira geminata*.

Dictyosiphon foeniculaceus (Hudson) Greville, 1830: 56.

References.

Greville, 1830, p. 56.

Harvey, 1852, p. 114.

Saunders, 1901b, p. 422.

Setchell and Gardner, 1903, p. 248 (in part); 1925, p. 589.

Collins, 1913, p. 107.

Muenschler, 1917, p. 258 (as *D. chordaria*).

Distribution.

Pacific Coast: Bering Sea to Northern Washington.

Local: British Columbia: Ucluelet (CAN 734).

Washington: Puget Sound.

Habitat.

On stones and other algae in the middle and lower intertidal zones.

Dictyosiphon sinicola Gardner, 1940: 268.

References.

Gardner, 1940, p. 268.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Clayoquot Sound (UW 137753; UC 464049).

Washington: San Juan I. (UC 276878, 392809); Puget Sound.

Habitat.

On rocks on muddy bottom in quiet water.

Order 7. LAMINARIALES

Family 1. CHORDACEAE

***Chorda filum** (Linnaeus) Lamouroux, 1813: 26.

References.

Lamouroux, 1813, p. 26.

MacMillan, 1902b, p. 213.

Setchell and Gardner, 1903, p. 254; 1925, p. 592.

Collins, 1913, p. 108.

Distribution.

Pacific Coast: Bering Sea to Northern Washington.

Local: British Columbia: Juan de Fuca Strait.

Washington: Puget Sound.

Habitat.

On stones in the upper subtidal zone.

Family 2. LAMINARIACEAE

Laminaria complanata (Setchell and Gardner) Setchell, 1912b: 149.

References.

Setchell and Gardner, 1903, p. 262 (as *L. saccharina* f. *complanata*); 1925, p. 596.

Setchell, 1912b, p. 149.

Collins, 1913, p. 109 (as *L. saccharina* f. *complanata*).

Muenschler, 1917, p. 264.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Friday Harbor (UC 97052, 97055).

Habitat.

On rocks and piles in the lower intertidal and upper subtidal zones.

Laminaria cuneifolia f. **amplissima** Setchell and Gardner, 1925: 603.

References.

Setchell and Gardner, 1903, p. 258 (as *L. bullata* f. *amplissima*); 1925, p. 603.

Collins, 1913, p. 109 (as *L. bullata* f. *amplissima*).

Distribution.

Pacific Coast: Sitka, Alaska, to Northern Washington.

Local: British Columbia: Esquimalt (UC 96926).

Washington: Friday Harbor; Roche Harbor; Cape Flattery; Whidbey I. (UC 96925, 96928, 96924).

* There is some reason to doubt that *Chorda filum* occurs in this area as indicated in the citations. The validity of MacMillan's (1902b) reference is questionable.

New Records.

British Columbia: Sidney, 20 October 1916 (CAN 1647).

Habitat.

On rocks and wood in the upper subtidal zone in sheltered areas.

Laminaria cuneifolia f. **angusta** Setchell and Gardner, 1925: 602.

References.

Setchell and Gardner, 1903, p. 257 (as *L. bullata* f. *angusta*); 1925, p. 602.

Collins, 1913, p. 108 (as *L. bullata* f. *angusta*).

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Vancouver I.

Washington: Cape Flattery; Whidbey I. (UC 96930, 96931, 96929, 96932).

New Records.

British Columbia: Beacon Hill, 1913 (V 1472).

Habitat.

On rocks in the upper subtidal zone.

Laminaria cuneifolia J. Agardh f. **cuneifolia**, 1867: 10.

References.

Agardh, 1867, p. 10 (as *L. cuneifolia*).

Saunders, 1901b, p. 428 (as *L. bullata*).

Setchell and Gardner, 1903, p. 257 (as *L. bullata*); 1925, p. 600 (as *L. cuneifolia*).

Setchell, 1912b, p. 151 (as *L. bullata*).

Collins, 1913, p. 108 (as *L. bullata*).

Cameron, 1916, p. 26 (as *L. bullata*).

Muenschler, 1917, p. 265 (as *L. bullata*).

Connell, 1928, p. 100 (as *L. bullata*).

Sanborn and Doty, 1947, p. 30 (as *L. cuneifolia*).

Doty, 1947a, p. 39 (as *L. cuneifolia*).

Distribution.

Pacific Coast: Bering Sea to Oregon.

Local: British Columbia: Departure B.; Strait of Georgia.

Washington: Whidbey I.; Puget Sound; Friday Harbor (UC 395235).

New Records.

British Columbia: Beacon Hill, 1913 (V 1473; CAN 1646).
Ucluelet, 20 May 1909 (CAN 1644).

Habitat.

On rocks in the upper subtidal zone.

Laminaria cuneifolia f. subsimplex Setchell and Gardner, 1925: 602.*References.*

Setchell and Gardner, 1903, p. 257 (as *L. bullata* f. *subsimplex*);
1925, p. 602.

Collins, 1913, p. 108 (as *L. bullata* f. *subsimplex*).

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Port Renfrew.

Washington: Whidbey I. (UC 96919, 96920, 96921, 132603); Puget Sound (UW 63665); Channel Rocks (UC 132753); Cattle Point (UC 402165).

Habitat.

On rocks in the upper subtidal zone.

Laminaria ephemera Setchell, 1901: 121.*References.*

Setchell, 1901, p. 121; 1912b, p. 150.

Griggs, 1906, p. 247 (as *Renfrewia parvula*).

Collins, 1913, p. 109.

Setchell, 1925, p. 603.

Smith, 1944, p. 136.

Doty, 1947a, p. 40.

Distribution.

Pacific Coast: Southern British Columbia to Carmel Bay, California.

Local: British Columbia: Port Renfrew (UC 96967, 763456).

Washington: Tacoma (UC 266410); Cape Flattery; Puget Sound.

Habitat.

On rocks in the upper subtidal zone.

Laminaria platymeris De La Pylaie, 1829: 52.*References.*

De La Pylaie, 1829, p. 52.

Harvey, 1862, p. 166 (as *L. dermatodea*).

Setchell, 1912b, p. 151.

Collins, 1913, p. 109 (as *L. bullata* f. *cuneata*).

Setchell and Gardner, 1925, p. 605.

Distribution.

Pacific Coast: Bering Sea to Northern Washington.

Local: British Columbia: Esquimalt; Oak B. (UC 395397, 395396); Sooke (UC 463996, 463994).

Washington: Juan de Fuca Strait (UC 395398); Channel Rocks (UC 402168, 132605, 132756); Neah B. (UC 402167); San Juan I. (UC 396701).

New Records.

British Columbia: Oak B., June 1917 (UW 63662).

Washington: Neah B., 1917 (UBC 399; UW 63667-8). Channel Rocks, August 1908 (UW 63666).

Habitat.

In the subtidal zone.

Laminaria saccharina* f. *linearis* J. Agardh, 1867: 12.References.*

Agardh, 1867, p. 12.

Setchell and Gardner, 1903, p. 261; 1925, p. 596.

Distribution.

Pacific Coast: Unga I., Alaska, to Northern Washington.

Local: Washington: Whidbey I. (UW 63661; UC 97059, 97057); Puget Sound (UW 63663); Neah B. (UC 395394, 402170).

Habitat.

On rocks in the upper subtidal zone.

Laminaria saccharina* f. *membranacea* J. Agardh, 1867: 13.References.*

Agardh, 1867, p. 13.

Setchell and Gardner, 1903, p. 261; 1925, p. 596.

Collins, 1913, p. 109.

Distribution.

Pacific Coast: Alaska, to Oregon.

Local: British Columbia: Vancouver I.

Washington: Fairhaven (UC 97078); Port Orchard (UC 278291); Friday Harbor (UW 64584); San Juan I. (UC 97079); Channel Rocks (UC 97077); East Sound (UC 97075).

New Records.

British Columbia: Sidney, 1913 (NM 1650).

Habitat.

On rocks and wood in the upper subtidal zone.

Laminaria saccharina (Linnaeus) Lamouroux f. **saccharina**, 1813: 22.*References.*

- Lamouroux, 1813, p. 22 (as *L. saccharina*).
 Harvey, 1862, p. 166 (as *L. saccharina*).
 Saunders, 1901b, p. 429 (as *L. saccharina*).
 Setchell and Gardner, 1903, p. 261 (as *L. saccharina*); 1925, p. 595 (as *L. saccharina*).
 Setchell, 1912b, p. 149 (as *L. saccharina*).
 Collins, 1913, p. 109 (as *L. saccharina*).
 Cameron, 1916, p. 26 (as *L. saccharina*).
 Muenscher, 1917, p. 263 (as *L. saccharina*).
 Sanborn and Doty, 1947, p. 30 (as *L. saccharina*).
 Doty, 1947a, p. 39 (as *L. saccharina*).
 Scagel, 1948, p. 10 (as *L. saccharina*).

Distribution.

Pacific Coast: Alaska to Oregon.

Local: British Columbia: Ucluelet; Esquimalt; Victoria (V 1274, 1474, 1482; CAN 1626, 1628, 1653, 1654); Departure B. (CAN 1645, 1651; UC 277436); Strait of Georgia; Deer I.

Washington: Puget Sound (UW 63657); Tacoma (UC 463995); Friday Harbor (UC 97053).

New Records.

British Columbia: Oak B., 27 March 1897 (V 1483). Comox, 1915 (V 1476, 1477, 1481, 1484; CAN 1648, 1649). Klucksiwi R., 15 July 1946 (RFS 193). N. Deer I., 15 August 1948 (RFS 337); 7 September 1947 (RFS 340); 15 September 1947 (RFS 355). Sidney, December 1917 (CAN 1627). Port Neville, 15 September 1947 (RFS 338). Thomas Point, 7 September 1947 (RFS 339); 16 July 1947 (RFS 343). Whiffin Spit, 30 December 1947 (RFS 341 and 342).

Washington: Minnesota Reef, July 1915 (UW 63656). Ballard Beach, 10 April 1904 (UW 64747, 64744-5).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Laminaria setchellii Silva, 1957: 42.*References.*

- Hervey, 1881, p. 98 (as *L. andersonii*).
 Saunders, 1901b, p. 431 (as *Eisenia arborea*).
 Setchell and Gardner, 1903, p. 255; 1925, p. 605 (as *L. andersonii*).
 Setchell, 1905, p. 145; 1912b, p. 151 (as *L. andersonii*).

References—Concluded

- Collins, 1913, p. 108 (as *L. andersonii*).
 Muenscher, 1917, p. 264 (as *L. andersonii*).
 Smith, 1944, p. 137 (as *L. andersonii*).
 Sanborn and Doty, 1947, p. 30 (as *L. andersonii*).
 Doty, 1947a, p. 40 (as *L. andersonii*).
 Rigg and Miller, 1949, p. 331 (as *L. andersonii*).
 Silva, 1957, p. 42.

Distribution.

- Pacific Coast: Northern British Columbia to Southern California.
 Local: British Columbia: Amphitrite Point; Point No Point.
 Washington: Whidbey I. (UBC 392; UC 96886, 96899, 800596); Puget Sound; Neah B. (UC 266465).

New Records.

- British Columbia: Ucluelet, 1909 (V 1478). Hope I., 26 June 1953 (RFS 548, 553–555, 586G). Striae Point, 25 July 1953 (RFS 891).

Habitat.

- On rocks in the lowermost intertidal and upper subtidal zones on exposed parts of the coast.

Laminaria sinclairii (Harvey ex Hooker f. et Harvey), Farlow, Anderson, and Eaton, 1878: 118.

References.

- Farlow, Anderson, and Eaton, 1878, p. 118.
 Anderson, 1891, p. 220.
 Setchell, 1896, p. 44.
 Setchell and Gardner, 1925, p. 598.
 Smith, 1944, p. 135.
 Sanborn and Doty, 1947, p. 30.
 Doty, 1947a, p. 40.
 Silva, 1957, p. 43.

Distribution.

- Pacific Coast: Southern British Columbia to Santa Barbara County, California.
 Local: Washington: Mukkaw B. (UC 266465).

New Records.

- British Columbia: Hope I., 26 June 1953 (RFS 561–567; 585G).

Habitat.

- On rocks in the lower intertidal and upper subtidal zones.

Pleurophycus gardneri Setchell and Saunders, *in* Saunders, 1901b: 427.

References.

- Saunders, 1901b, p. 427.
- Setchell, 1901, p. 123.
- MacMillan, 1902b, p. 213.
- Setchell and Gardner, 1903, p. 264; 1925, p. 607.
- Collins, 1913, p. 109.
- Muenschel, 1917, p. 262.
- Sanborn and Doty, 1947, p. 30.
- Doty, 1947a, p. 41.
- Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Yakutat B., Alaska, to Oregon.
- Local: British Columbia: Port Renfrew.
- Washington: Whidbey I. (UC 402187, 777352, 132633, 97183); Port Townsend; North Bay (UC 763531); Neah B. (UC 266497); Puget Sound.

New Records.

- British Columbia: Hope I., 26 June 1953 (RFS 590G and 598).
- Washington: False Bay, 11 July 1949 (RFS 426).

Habitat.

- On rocks in the lower intertidal and the upper subtidal zones.

Cymathere triplicata (Postels and Ruprecht) J. Agardh, 1867: 30.

References.

- Agardh, 1867, p. 30.
- Saunders, 1901b, p. 430.
- MacMillan, 1902b, p. 213.
- Setchell and Gardner, 1903, p. 264; 1925, p. 608.
- Griggs, 1907, p. 89.
- Collins, 1913, p. 109.
- Cameron, 1916, p. 27.
- Muenschel, 1917, p. 267.
- Scagel, 1948, p. 10.
- Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
- Local: British Columbia: Victoria (V 1253, 1276; CAN 1569, 1619; UC 763519); Esquimalt; Deer I.
- Washington: Whidbey I. (UW 63995, 64618); Port Townsend; Port Ludlow; Channel Rocks; Neah B. (UC 402110, 777301); Puget Sound.

New Records.

British Columbia: Comox, July 1915 (V 1252). Amphitrite Point, 1887 (CAN 1601). Sidney, 1913 (CAN 1620).
 Washington: Deer Harbor, 14 July 1907 (UW 64617, 64619).

Habitat.

On rocks in the upper subtidal zone.

Costaria costata (Turner) Saunders, 1895: 57.

References.

Harvey, 1852, p. 90 (as *C. turneri*); 1862, p. 166 (as *C. turneri*).
 Bailey and Harvey, 1862, p. 160 (as *C. turneri*).
 Saunders, 1895, p. 57; 1901b, p. 431 (as *C. turneri*).
 Setchell and Gardner, 1903, p. 265 (as *C. turneri*); 1925, p. 610.
 Setchell, 1912b, p. 154.
 Collins, 1913, p. 109 (as *C. turneri*).
 Cameron, 1916, p. 26 (as *C. turneri*).
 Muenscher, 1917, p. 262.
 Angst, 1927b, p. 293.
 Connell, 1928, p. 100.
 Smith, 1944, p. 138.
 Sanborn and Doty, 1947, p. 30.
 Doty, 1947a, p. 41.
 Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Shumagin Is., Alaska, to San Pedro, California.
 Local: British Columbia: Amphitrite Point; Port Renfrew; Esquimalt (UC 96719); Victoria (UC 402109, 777300); Departure B. (CAN 1640; UC 277430); Horswell Channel.
 Washington: Whidbey I. (UC 132658, 96720); Neah B.; Puget Sound; Tracyton (UC 763478); Friday Harbor (UC 395324, 395303); Roche Harbor (UC 266488); Goose I. (UC 974467).

New Records.

British Columbia: Beacon Hill, July 1913 (V 1250); 2 June 1908 (CAN 1639, 1642). Whiffin Spit, 30 December 1947 (RFS 64). Hopetown Passage, 14 July 1946 (RFS 350). Sidney, 1913 (CAN 1174). Stanley Park, 18 April 1953 (RFS 516). Hope I., 26 June 1953 (RFS 589G). Comox, July 1915 (V 1251).
 Washington: False B., 1928 (UW 70550). Canoe I., 13 July 1907 (UW 64615).

Habitat.

On rocks and wood in the lower intertidal and upper subtidal zones.

Costaria mertensii J. Agardh, 1848: 140.*References.*

- Agardh, 1848, p. 140.
 Harvey, 1852, p. 90.
 Saunders, 1895, p. 57.
 Setchell and Gardner, 1925, p. 610 (in part as *C. costata*).
 Smith, 1944, p. 138 (in part as *C. costata*).
 Doty, 1947a, p. 41.

Distribution.

Pacific Coast: Bering Sea to Monterey, California.

New Records.

- British Columbia: Departure B., 13 July 1887 (CAN 1638);
 1938 (UBC 239, 241-2). Comox (CAN 1666). Oak
 Bay, June 1917 (UBC 243; UW 64510, 137703).
 Washington: San Juan I., July 1915 (UW 63874-5). Friday
 Harbor, 19 July 1904 (UW 64499, 64614).

Habitat.

On rocks in the upper subtidal zone.

*** Thalassiophyllum clathrus** (Gmelin) Postels and Ruprecht, 1840: 11.*References.*

- Postels and Ruprecht, 1840, p. 11.
 Harvey, 1852, p. 97.
 Setchell, 1899b, p. 592; 1912b, p. 155.
 MacMillan, 1902b, p. 213.
 Setchell and Gardner, 1903, p. 266; 1925, p. 613.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: British Columbia: Juan de Fuca Strait.
 Washington: Juan de Fuca Strait.

Habitat.

On rocks in the upper subtidal zone.

Agarum cribrosum Bory, 1826: 193.*References.*

- Bory, 1826, p. 193.
 Harvey, 1852, p. 95 (as *A. turneri*).
 Setchell, 1912b, p. 155.
 Muenscher, 1917, p. 260.
 Setchell and Gardner, 1903, p. 265 (as *A. turneri*); 1925,
 p. 615.

* There is some reason to doubt that *Thalassiophyllum clathrus* occurs as far south as British Columbia and Puget Sound. The validity of MacMillan's (1902b) reference is questionable.

Distribution.

Pacific Coast: Bering Sea to Northern Washington.

Local: Washington: Minnesota Reef (UW 64456, 137879; UBC 172); Eagle Point; Canoe I.; San Juan I. (UC 789880, 777339, 266539, 266494, 395302).

New Records.

British Columbia: Hazardous Cove, 28 July 1953 (RFS 680).

Habitat.

On rocks in the upper subtidal zone down to a depth of at least 5 fathoms.

Agarum fimbriatum Harvey, 1862: 166.

References.

Harvey, 1862, p. 166.

Setchell and Gardner, 1903, p. 266; 1925, p. 616.

Collins, 1913, p. 109.

Cameron, 1916, p. 26.

Muenschler, 1917, p. 262.

Dawson, 1949a, p. 22.

Distribution.

Pacific Coast: Southern British Columbia to Southern California.

Local: British Columbia: Esquimalt; Strait of Georgia.

Washington: Whidbey I.; Friday Harbor (UW 64457-8; UC 96531, 266490); Tracyton (UC 763530); East Sound (UC 96529, 96530).

New Records.

British Columbia: Amphitrite Point, 20 May 1909 (CAN 1570). Hazardous Cove, 28 July 1953 (RFS 682).

Washington: Parker Reef, 19 July 1949 (RFS 142 and 430). Indian Cove, 25 June 1952 (RFS 533). Waldron I., 15 July 1904 (UW 64695).

Habitat.

On rocks from the upper subtidal zone down to a depth of several fathoms.

Hedophyllum sessile (C. Agardh) Setchell, *in* Collins, Holden and Setchell, 1899: 8.

References.

Harvey, 1862, p. 167 (as *Laminaria apoda*).

Collins, Holden and Setchell, 1899, p. 8 (A).

Setchell, 1901, p. 121; 1912b, p. 152.

Setchell and Gardner, 1903, p. 262; 1925, p. 617.

Collins, 1913, p. 109.

References—Concluded

- Muenschel, 1917, p. 266.
 Sanborn and Doty, 1947, p. 36.
 Doty, 1947a, p. 42.
 Scagel, 1948, p. 10.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Yakutat B., Alaska, to Point Sur, California.
 Local: British Columbia: Amphitrite Point (CAN 1607; UC 160733); Juan de Fuca Strait; Port Renfrew; Esquimalt (CAN 1611; UC 96823, 96824); Victoria (CAN 1609, 1610; UC 763529); Kraan Cove; Deer I.; Sooke (UC 463990); Clayoquot Sound (UC 463991).
 Washington: Whidbey I. (UC 96826); San Juan I.; Neah B. (UW 63839; UC 395221, 910648, 402162); Kanaka B. (UC 96827); Anacortes (UC 910650).

New Records.

- British Columbia: Ucluelet, 5 July 1909 (CAN 1605). Kvarno I., 6 July 1909 (CAN 1603). Whiffin Spit, 30 December 1947 (RFS 334); 25 October 1953 (RFS 594G). Hope I., 26 June 1953 (RFS 579-80, 592G, 599-602). Sooke, 1 August 1893 (CAN 1604). Little Toquart B., 5 July 1909 (CAN 1606).
 Washington: Anacortes (UC 910650); Neah B. (UC 395221).

Habitat.

- On rocks in the middle and lower intertidal and upper subtidal zones.

Hedophyllum subsessile (Areschoug) Setchell, *in* Collins, Holden and Setchell, 1899: 27.

References.

- Collins, Holden and Setchell, 1899, p. 27 (B).
 Setchell, 1901, p. 122.
 Saunders, 1901b, p. 430.
 Setchell and Gardner, 1903, p. 263; 1925, p. 618.
 Muenschel, 1917, p. 266.
 Sanborn and Doty, 1947, p. 31.
 Doty, 1947a, p. 42.

Distribution.

- Pacific Coast: Bering Sea to Oregon.
 Local: Washington: Puget Sound.

Habitat.

- On rocks in the middle intertidal zone in exposed areas.

* **Dictyoneurum californicum** Ruprecht, 1852: 80.

References.

- Ruprecht, 1852, p. 80.
 Saunders, 1895, p. 58 (as *Costaria reticulata*).
 Setchell, 1896, p. 46.
 MacMillan, 1902b, p. 213.
 Setchell and Gardner, 1903, p. 267; 1925, p. 622.
 Griggs, 1906, p. 267.
 Collins, 1913, p. 109.
 Smith, 1944, p. 139.

Distribution.

- Pacific Coast: Southern British Columbia to San Luis Obispo, California.
 Local: British Columbia: Port Renfrew (UC 763501).

Habitat.

- On rocks in the lower intertidal and upper subtidal zones.

Family 3. LESSONIACEAE

Nereocystis luetkeana (Mertens) Postels and Ruprecht, 1840: 9.

References

- Postels and Ruprecht, 1840, p. 9.
 Harvey, 1852, p. 85; 1862, p. 164.
 MacMillan, 1899, p. 273.
 Saunders, 1901b, p. 431 (as *N. priapus*).
 Setchell and Gardner, 1903, p. 268; 1925, p. 624.
 Frye, 1906, p. 143.
 Setchell, 1908b, p. 126; 1912b, p. 158.
 Rigg, 1912a, p. 83.
 Collins, 1913, p. 110.
 Cameron, 1916, p. 26.
 Muenscher, 1917, p. 273.
 Hartge, 1928, p. 207.
 Connell, 1928, p. 100.
 Smith, 1944, p. 141.
 Sanborn and Doty, 1947, p. 31.
 Doty, 1947a, p. 42.
 Scagel, 1948, p. 10.

* There is some reason to doubt that *Dictyoneurum californicum* occurs as far north as British Columbia. The plant recorded from Port Renfrew was washed ashore.

Distribution.

Pacific Coast: Shumagin Is., Alaska, to Santa Barbara, California.

Local: British Columbia: Esquimalt (CAN 1585, 1586); Port Renfrew; Departure B. (V 1278); Deer I.; Queen Charlotte Is.; Tofino (UC 464044).

Washington: Whidbey I. (UC 97173); Port Orchard (UC 278288); Puget Sound (UW 64174).

New Records.

British Columbia: Sidney, 1913 (V 1277); 1817 (CAN 1608). Beacon Hill, 30 May 1901 (V 1275). Deer I. 10 September 1947 (RFS 73-74, 79-82); 15 September 1947 (RFS 180-184). Brockton Point, 15 April 1949 (RFS 171, 185); 17 April 1953 (RFS 515, 517).

Habitat.

On rocks in the upper subtidal zone and to a depth of several fathoms.

***Postelsia palmaeformis* Ruprecht, 1852: 19.**

References.

- Ruprecht, 1852, p. 19.
- MacMillan, 1902b, p. 213.
- Setchell and Gardner, 1903, p. 268; 1925, p. 625.
- Setchell, 1912b, p. 158.
- Collins, 1913, p. 110.
- Muenschler, 1917, p. 277.
- Smith, 1944, p. 142.
- Sanborn and Doty, 1947, p. 31.
- Doty 1947a, p. 42.
- Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Hope I., British Columbia, to San Luis Obispo, California.

Local: British Columbia: Juan de Fuca Strait; Kraan Cove (UC 277411).

Washington: Neah B. (UC 910622); Puget Sound; Friday Harbor.

New Records.

British Columbia: Ucluelet, 20 July 1909 (V 1280; CAN 1573, 1574, 1575). Hope I., 26 June 1953 (RFS 557-560, 587G, 588G).

Washington: Waadah I., 7 August 1952 (RFS 536, 537).

Habitat.

On rocks in the middle and lower intertidal zones in areas exposed to heavy surf.

Macrocystis integrifolia Bory, 1826a: 10.*References.*

- Bory, 1826a, p. 10.
 Harvey, 1852, p. 84 (as *M. pyrifera*); 1862, p. 164 (as *M. pyrifera*).
 Setchell and Gardner, 1903, p. 270 (as *M. pyrifera*); 1925, p. 627 (in part as *M. pyrifera*), p. 628.
 Setchell, 1912b, p. 158 (as *M. pyrifera*); 1932, p. 448.
 Collins, 1913, p. 110 (as *M. pyrifera*).
 Cameron, 1916, p. 27 (as *M. pyrifera*).
 Muenscher, 1917, p. 274 (as *M. pyrifera*).
 Smith, 1944, p. 143.
 Sanborn and Doty, 1947, p. 31 (also as *M. pyrifera*).
 Doty, 1947a, p. 42 (also as *M. pyrifera*).
 Scagel, 1948, p. 7.
 Rigg and Miller, 1949, p. 331.
 Womersley, 1954, p. 120.

Distribution.

- Pacific Coast: Sitka, Alaska, to Carmel, California.
 Local: British Columbia: Port Renfrew (UC 763502); Esquimalt (UC 97225); Victoria (V 1270); Clayoquot Sound (UC 445013); Quatsino Sound (UC 445012).
 Washington: Whidbey I. (UC 97224); Neah B. (UC 910615).

New Records.

- British Columbia: Gordon Head, 1887 (CAN 1581, 1582).
 Ucluelet, 1909 (CAN 1579, 1633). Dodger Channel, 25 June 1896 (V 1267-1268). Thomas Point, 16 July 1947 (RFS 24, 36). Whiffin Spit, 30 December 1947 (RFS 19, 27-29, 147, 152, 154, 163-164, 176-178). Sooke, 1 August 1893 (V 1269); 7 August 1949 (RFS 431-444); 1 August 1893 (CAN 1584). Prescott Passage, 10 August 1946 (RFS 49-50, 159). Welcome Harbour, 9 August 1946 (RFS 169). Deer I., 20 August 1947 (RFS 166); 28 August 1947 (RFS 156, 158, 167); 10 September 1947 (RFS 145); 15 September 1947 (RFS 37-39, 47); 19 July 1947 (RFS 26); 7 September 1947 (RFS 16, 17, 30-32, 146, 149-150, 168); 15 August 1947 (RFS 18, 20-21, 33-35, 143, 155, 157, 160-162, 165, 172-175, 179); 17 July 1947 (RFS 22-23, 25, 40-46, 48, 144, 151, 153, 186); 16 July 1947 (RFS 148).
 Washington: Port Angeles, 1928 (UW 70549).

Habitat.

- On rocks in the lowermost intertidal and upper subtidal zones to a depth of about 4 fathoms; only in areas close to the open ocean, but not exposed directly to heavy surf.

Lessoniopsis littoralis (Farlow and Setchell) Reinke, 1903: 25.*References.*

- MacMillan, 1900, p. 318 (as *Lessonia littoralis*); 1902b, p. 213 (as *Lessonia littoralis*).
 Reinke, 1903, p. 25.
 Setchell, 1903, p. 357 (as *L. nigrescens*).
 Setchell and Gardner, 1903, p. 267 (as *Lessonia littoralis*); 1925, p. 632.
 Griggs, 1909a, p. 9; 1909b, p. 437.
 Collins, 1913, p. 110.
 Smith, 1944, p. 145.
 Sanborn and Doty, 1947, p. 31.
 Doty, 1947a, p. 43.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Sitka, Alaska, to Carmel, California.
 Local: British Columbia: Port Renfrew; Ucluelet (V 1266; CAN 1566-1568; Juan de Fuca Strait (UC 763520), Washington: Neah B. (UC 763520).

New Records.

- British Columbia: Hope I., 26 June 1952 (RFS 556, 591G. 597).
 Washington: Waadah I., 7 August 1952 (RFS 539-541).

Habitat.

- On rocks in the lowermost intertidal zone in areas exposed to heavy surf on the open coast.

Family 4. ALARIACEAE

Pterygophora californica Ruprecht, 1852: 17.*References.*

- Ruprecht, 1852, p. 17.
 MacMillan, 1902a, p. 723; 1902b, p. 213.
 Setchell and Gardner, 1903, p. 271; 1925, p. 634.
 Collins, 1913, p. 110.
 Muenscher, 1917, p. 280.
 Frye, 1918, p. 65.
 McKay, 1933, p. 111.
 Smith, 1944, p. 148.
 Dawson, 1945d, p. 65.
 Sanborn and Doty, 1947, p. 31.
 Doty, 1947a, p. 43.
 Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Port Renfrew (UC 763500).

Washington: Cape Flattery; Peavine Pass; Neah B. (UC 910621); Whidbey I. (UC 97251, 97254, 97241, 97249).

Habitat.

On rocks in the upper subtidal zone and down to a depth of about 5 fathoms.

Alaria marginata Postels and Ruprecht, 1840: 11.

References.

Postels and Ruprecht, 1840, p. 11.

Harvey, 1852, p. 89; 1862, p. 165.

Setchell, 1896, p. 41; 1908a, p. 9; 1912b, p. 162.

Saunders, 1901a, p. 561 (as *A. curtipes*).

Setchell and Gardner, 1903, p. 275; 1925, p. 640.

Collins, 1913, p. 110.

Yendo, 1919, p. 93.

Smith, 1944, p. 147.

Sanborn and Doty, 1947, p. 32 (in part as *A. valida*).

Doty, 1947a, p. 43.

Scagel, 1948, p. 10.

Distribution.

Pacific Coast: Northern British Columbia to Carmel, California.

Local: British Columbia: Amphitrite Point; Esquimalt; Kraan Cove; Victoria; Deer I.

Washington: Minnesota Reef (UC 278292, 763464).

New Records.

British Columbia: Brockton Point, 15 April 1949 (RFS 120).

Stanley Park, 17 April 1953 (RFS 520). Hope I., 26

June 1953 (RFS 572-577, 582G-584G, 596). Striae

Point, 25 July 1953 (RFS 888).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Alaria nana Schrader, 1903: 157.

References.

Schrader, 1903, p. 157.

Collins, 1913, p. 110 (as *A. marginata* f. *nana*).

Yendo, 1919, p. 118.

Setchell and Gardner, 1925, p. 636.

Smith, 1944, p. 146.

Distribution.

Pacific Coast: Hope I., British Columbia, to Carmel, California.

Local: British Columbia: Port Renfrew; Amphitrite Point (UC 160743).

New Records.

British Columbia: Hope I., 26 June 1953 (RFS 568-571, 593G). Deer I., 27 June 1953 (RFS 603-615).

Habitat.

On rocks in the upper intertidal zone in exposed areas.

Alaria tenuifolia* f. *amplior Setchell and Gardner, 1903: 274.

References.

Harvey, 1862, p. 165 (as *A. pylaii*).

Setchell and Gardner, 1903, p. 274; 1925, p. 639.

Collins, 1913, p. 111.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Esquimalt (UC 96655, 96654, 96651, 96652, 96653); Port Renfrew.

Washington: Roche Harbor (UC 96656, 395390); Friday Harbor (UC 395384); Waldron I. (UC 395391).

New Records.

British Columbia: Oak B., June 1917 (UW 64448; UC 402100, 395393).

Habitat.

On rocks and wood in the upper subtidal zone.

Alaria tenuifolia Setchell f. ***tenuifolia***, in Collins, Holden and Setchell, 1901: 45.

References.

Collins, Holden and Setchell, 1901, p. 45 (as *A. tenuifolia*).

Setchell and Gardner, 1903, p. 272 (as *A. tenuifolia* and as *A. pylaii*); 1925, p. 638 (as *A. tenuifolia*).

Setchell, 1908a, p. 12 (as *A. tenuifolia*); 1912b, p. 162 (as *A. tenuifolia*).

Cameron, 1916, p. 26 (as *A. tenuifolia*).

Muenschler, 1917, p. 278 (as *A. tenuifolia*).

Yendo, 1919, p. 97 (as *A. pylaii*).

Scagel, 1948, p. 10 (as *A. tenuifolia*).

Rigg and Miller, 1949, p. 331 (as *A. tenuifolia*).

Distribution.

Pacific Coast: Bering Sea to Northern Washington.

Local: British Columbia: Esquimalt; Strait of Georgia.

Washington: Puget Sound; Neah B. (UW 64508);
Roche Harbor (UC 273764).

New Records.

British Columbia: Comox, 15 July 1915 (V 1241; CAN 1571).
Departure B. (CAN 1561).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Alaria valida* f. *longipes Setchell and Gardner, 1903: 279.

References.

Setchell and Gardner, 1903, p. 279; 1925, p. 644.

Distribution.

Pacific Coast: Queen Charlotte Sound, British Columbia, to
Northern Washington.

Local: British Columbia: Sooke (UC 463989); Table I.
(UC 633999).

Washington: Whidbey I. (UC 96666, 132634); Friday
Harbor (UC 401901).

Habitat.

On rocks in the upper subtidal zone.

Alaria valida Kjellman and Setchell f. ***valida***, in Setchell and Gardner,
1903: 278.

References.

Setchell and Gardner, 1903, p. 278 (as *A. valida*); 1925,
p. 643 (as *A. valida*).

Collins, 1913, p. 110 (as *A. grandifolia*).

Muenschler, 1917, p. 278 (as *A. valida*).

Distribution.

Pacific Coast: Unga I., Alaska, to Northern Washington.

Local: British Columbia: Amphitrite Point (CAN 1562, 1565,
1587, 1589).

Washington: Whidbey I. (UC 132657, 96667, 96669,
132803, 96665); Puget Sound.

New Records.

British Columbia: Klucksiwi R., 14 July 1946 (RFS 125).
Sooke (UC 463988). Deer I., 27 June 1953 (RFS 616-
617). Beacon Hill, 2 June 1908 (CAN 1563). Kvarno
I., 29 July 1909 (CAN 1564, 1588). Table I., 10 June
1937 (UC 633999).

Washington: Neah B. (UC 395392).

Habitat.

On rocks in the upper subtidal zone.

Egregia menziesii (Turner) Areschoug subsp. **menziesii**, 1876: 67.

References.

- Harvey, 1852, p. 62 (as *Phyllospora menziesii*).
 Bailey and Harvey, 1862, p. 160 (as *Phyllospora menziesii*).
 Areschoug, 1876, p. 67 (as *E. menziesii*).
 Ramaley, 1903, p. 1 (as *E. menziesii*).
 Setchell and Gardner, 1903, p. 271; 1925, p. 647 (as *E. menziesii*).
 Setchell, 1912b, p. 164 (as *E. menziesii*).
 Collins, 1913, p. 110 (as *E. menziesii*).
 Cameron, 1916, p. 27 (as *E. menziesii*).
 Muenscher, 1917, p. 274 (as *E. menziesii*).
 Myers, 1928, p. 225 (as *E. menziesii*).
 Smith, 1944, p. 149 (as *E. menziesii*).
 Sanborn and Doty, 1947, p. 32 (as *E. menziesii*).
 Doty, 1947a, p. 44 (as *E. menziesii*).
 Scagel, 1948, p. 10 (as *E. menziesii*).
 Rigg and Miller, 1949, p. 311 (as *E. menziesii*).
 Silva, 1957, p. 45 (as *E. menziesii*).

Distribution.

Pacific Coast: Northern British Columbia to Point Conception, California.

Local: British Columbia: Port Renfrew; Nootka Sound; Esquimalt; Victoria (CAN 632, 1591, 1594; UC 278287); Point No Point; Tofino.

Washington: Neah B. (UC 395392); Whidbey I. (UC 96782); Puget Sound.

New Records.

British Columbia: Klucksiwi R., 14 July 1946 (RFS 170).
 Sooke, 24 July 1893 (CAN 415). Amphitrite Point, 20 May 1909 (CAN 1593). Hope I., 26 June 1953 (RFS 549-552, 581G, 595). Gordon Head, 8 May 1887 (CAN 741). Point Holmes, 24 June 1893 (CAN 1592). Mazzaredo Is., 26 July 1953 (RFS 793).

Habitat.

On rocks in the lower intertidal and upper subtidal zones in fairly exposed areas.

Order 8. FUCALES

Family 1. FUCACEAE

Fucus edentatus f. acutus Gardner, 1922: 31.*References.*

Setchell and Gardner, 1903, p. 280 (as *F. inflatus* f. *linearis*);
1925, p. 680.

Collins, 1913, p. 111.

Gardner, 1922, p. 31.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Victoria (CAN 1701).

Washington: Fairhaven (UC 99092, 99189); Whidbey I.

New Records.

British Columbia: Departure B., 26 June 1908 (CAN 1706).

Habitat.

On rocks in the middle intertidal zone.

Fucus edentatus f. costatus Gardner, 1922: 30.*References.*

Setchell and Gardner, 1903, p. 284 (as *F. evanescens* f. *angustus*); 1925, p. 680.

Gardner, 1922, p. 30.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Whidbey I.; East Sound (UW 64106; UC 201184, 402131).

Habitat.

On rocks in the lower intertidal zone.

Fucus edentatus f. divaricatus Gardner, 1922: 31.*References.*

Setchell and Gardner, 1903, p. 281 (as *F. inflatus* f. *filiformis*);
1925, p. 681.

Collins, 1913, p. 111 (as *F. inflatus* f. *filiformis*).

Gardner, 1922, p. 31.

Connell, 1928, p. 100.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Ucluelet; Departure B.; Comox (UC 90963).

Washington: Fairhaven (UC 99185); Bellingham (UBC 338; UW 64042, 137807; UC 402132).

Habitat.

On sandstone ledges in the lower intertidal zone.

Fucus edentatus* f. *divergens* Gardner, 1922: 29.References.*

Gardner, 1922, p. 29.

Setchell and Gardner, 1925, p. 679.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Kanaka B. (UBC 335-6; UW 64034, 137801; UC 201174, 402133).

Habitat.

On rock ledges in the lower intertidal zone.

Fucus edentatus* De La Pylaie f. *edentatus*, 1829: 84.References.*

De La Pylaie, 1829, p. 84 (as *F. edentatus*).

Muenschel, 1917, p. 275 (as *F. inflatus*).

Gardner, 1922, p. 28 (as *F. edentatus*).

Setchell and Gardner, 1925, p. 678 (as *F. edentatus*).

Distribution.

Pacific Coast: Sitka, Alaska, to Oregon.

Local: British Columbia: Esquimalt (UC 99163); Victoria (UC 278285).

Washington: Kanaka B. (UC 395253); East Sound (UC 395267); Whidbey I. (UC 99184).

New Records.

British Columbia: Comox, 3 May 1887 (CAN 1708). Beacon Hill, 2 June 1908 (CAN 1707, 1709). Mayne I., June 1914 (V 1462); May 1914 (V 1464). Ucluelet, 20 July 1909 (V 1465). Departure B., 1 August 1924 (V 1471). Sidney, 4 October 1917 (CAN 1711, 1712).

Habitat.

On rocks in the upper and middle intertidal zones.

Fucus evanescens C. Agardh f. **evanescens**, 1820: 92.*References.*

- Agardh, 1820, p. 92 (as *F. evanescens*).
 ?Harvey, 1852, p. 71 (as *Fucus vesiculosus*); 1862, p. 163
 (as *F. vesiculosus* var. *evesiculosus*).
 Collins, 1913, p. 111 (as *F. evanescens*).
 Cameron, 1916, p. 26 (as *F. evanescens*).
 Muenscher, 1917, p. 275 (as *F. evanescens*).
 Gardner, 1922, p. 36 (as *F. evanescens*).
 Setchell and Gardner, 1925, p. 681 (as *F. evanescens*).
 Doty, 1947a, p. 44 (as *F. evanescens*).
 Rigg and Miller, 1949, p. 331 (as *F. evanescens*).

Distribution.

- Pacific Coast: Bering Sea to Oregon.
 Local: British Columbia: Strait of Georgia; Esquimalt (UC 68288); Victoria (V 1470; CAN 1710; UC 277438);
 Departure B. (UC 277440).
 Washington: Neah B.; Puget Sound (UW 64720;
 64717; UC 636813); Tracyton (UC 278286); Port
 Townsend (UC 132745).

New Records.

- British Columbia: Departure B., 26 June 1908 (V 1469).
 Sidney, 1916 (V 1461; CAN 1713); 1913 (V 1468; CAN
 1700). Mayne I., May 1914 (V 1463).
 Washington: False B., 29 May 1949 (RFS 329). Point
 Caution, 25 May 1949 (RFS 330, 345-346).

Habitat.

On rocks in the intertidal and upper subtidal zones.

Fucus evanescens f. **flabellatus** Gardner, 1922: 44.*References.*

- Gardner, 1922, p. 44.
 Setchell and Gardner, 1925, p. 689.

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: Bellingham (UBC 348; UC 201172,
 201169); Seattle (UC 395275).

Habitat.

On rocks and ledges in the middle intertidal zone.

Fucus evanescens f. **macrocephalus** Kjellman 1889b: 34.*References.*

- Kjellman, 1889b, p. 34.
 Saunders, 1901b, p. 432.

References—Concluded

- Setchell and Gardner, 1903, p. 282; 1925, p. 684.
 Collins, 1913, p. 111.
 Gardner, 1922, p. 45.
 Connell, 1928, p. 100.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: British Columbia: Ucluelet (V 1460, 1191); Departure B.
 Washington: Whidbey I.; Tracyton.

New Records.

- British Columbia: Mayne I., May 1914 (CAN 1698). Sidney 1913 (CAN 1699). Beacon Hill, May 1887 (CAN 1702).

Habitat.

- On rocks in the middle intertidal zone.

Fucus evanescens* f. *magnificus* Gardner, 1922: 48.References.*

- Gardner, 1922, p. 48.
 Setchell and Gardner, 1925, p. 686.

Distribution.

- Pacific Coast: Juneau, Alaska, to Northern Washington.
 Local: Washington: Griffin B. (UBC 347; UW 137802); Cattle Point (UC 402138).

Habitat.

- On rocks in the upper and middle intertidal zones.

Fucus evanescens* f. *nanus* Kjellman, 1877b: 4.References.*

- Kjellman, 1877b, p. 4.
 DeToni, 1895, p. 203.
 Setchell and Gardner, 1903, p. 285; 1925, p. 698.
 Gardner, 1922, p. 37.

Distribution.

- Pacific Coast: Yakutat B., Alaska, to Tokeland, Central Washington.
 Local: Washington: Seattle (UC 547630, 547639).

Habitat.

- On rocks on mud flats in brackish water in the upper intertidal zone.

Fucus evanescens* f. *pergrandis* Kjellman, 1877b: 3.References.*

- Kjellman, 1877b, p. 3.
 DeToni, 1895, p. 203.
 Setchell and Gardner, 1903, p. 284; 1925, p. 685.
 Collins, 1913, p. 111.
 Gardner, 1922, p. 46.

Distribution.

- Pacific Coast: Unalaska I., Alaska, to Northern Washington.
 Local: British Columbia: Port Renfrew; Victoria (CAN 1705).
 Washington: Puget Sound.

Habitat.

- On rocks in the upper and middle intertidal zones.

Fucus evanescens* f. *robustus* Setchell and Gardner, 1903: 283.References.*

- Setchell and Gardner, 1903, p. 283; 1925, p. 687.
 Gardner, 1922, p. 47.
 Connell, 1928, p. 100.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: British Columbia: Departure B.; Ucluelet (UC 463999).
 Washington: Friday Harbor (UBC 344; UW 64045, 64719, 137803; UC 201207, 276599).

Habitat.

- On rocks in the upper intertidal zone in sheltered areas.

Fucus evanescens* f. *stellatus* Gardner, 1922: 49.References.*

- Gardner, 1922, p. 49.
 Setchell and Gardner, 1925, p. 687.

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: Sackman Point.

Habitat.

- On rocks and logs in the lower intertidal zone.

Fucus gardneri* f. *abbreviatus* (Gardner) Seagel, comb. nov.References.*

- Gardner, 1922, p. 19 (as *F. furcatus* f. *abbreviatus*).
 Setchell and Gardner, 1925, p. 672 (as *F. furcatus* f. *abbreviatus*).
 Johnson and Doty, 1947, p. 32 (as *F. furcatus* f. *abbreviatus*).

Distribution.

Pacific Coast: Northern Washington to Oregon.
Local: Washington: San Juan Is. (UC 201200).

Habitat.

On rocks in the middle intertidal zone.

Fucus gardneri* f. *angustus (Gardner) Seagel, comb. nov.*References.*

Gardner, 1922, p. 18 (as *F. furcatus* f. *angustus*).
Setchell and Gardner, 1925, p. 673 (as *F. furcatus* f. *angustus*).
Sanborn and Doty, 1947, p. 32 (as *F. furcatus* f. *angustus*).

Distribution.

Pacific Coast: Northern Washington to Oregon.
Local: Washington: San Juan Is. (UC 201188); Port
Townsend (UC 395279).

Habitat.

On rocks in the upper intertidal zone.

Fucus gardneri* f. *contortus (Gardner) Seagel, comb. nov.*References.*

Gardner, 1922, p. 25 (as *F. furcatus* f. *contortus*).
Setchell and Gardner, 1925, p. 668 (as *F. furcatus* f. *contortus*).

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Bellingham (UC 201208).

Habitat.

On rocks in the lower intertidal zone.

Fucus gardneri* f. *cornutus (Gardner) Seagel, comb. nov.*References.*

Collins, 1913, p. 111 (as *F. evanescens* f. *cornutus*).
Setchell and Gardner, 1903, p. 283 (as *F. evanescens* f. *cornutus*); 1925, p. 671 (as *F. furcatus* f. *cornutus*).
Gardner, 1922, p. 20 (as *F. furcatus* f. *cornutus*).

Distribution.

Pacific Coast: Yakutat Bay, Alaska, to Northern Washington.
Local: British Columbia: Esquimalt (UC 99102); Victoria
(CAN 1704).
Washington: Cattle Point (UC 395249).

New Records.

British Columbia: Departure B., 26 June 1908 (CAN 1703).

Habitat.

On rocks in the middle and lower intertidal zones.

Fucus gardneri* f. *elongatus* (Gardner) Scagel, comb. nov.References.*

- Gardner, 1922, p. 21 (as *F. furcatus* f. *elongatus*).
 Setchell and Gardner, 1925, p. 667 (as *F. furcatus* f. *elongatus*).
 Sanborn and Doty, 1947, p. 32 (as *F. furcatus* f. *elongatus*).

Distribution.

- Pacific Coast: Southern British Columbia to Oregon.
 Local: British Columbia: Esquimalt (UC 132743).
 Washington: San Juan I. (UC 201205, 201183, 201202).

Habitat.

On rocks in the lower intertidal zone in exposed areas.

****Fucus gardneri* Silva f. *gardneri*, 1953: 227.***References.*

- ?Harvey, 1862, p. 163 (as *Fucus furcatus*).
 Collins, 1913, p. 111 (as *F. inflatus* f. *edentatus*).
 Cameron, 1916, p. 26 (as *F. furcatus*).
 Gardner, 1922, p. 16 (as *F. furcatus* and *F. furcatus* f. *typicus*).
 Setchell and Gardner, 1903, p. 280 (as *F. inflatus* f. *edentatus*);
 1925, p. 644 (as *F. furcatus*), p. 665 (as *F. furcatus* f. *typicus*).
 Smith, 1944, p. 152 (as *F. furcatus*).
 Sanborn and Doty, 1947, p. 32 (as *F. furcatus* f. *typicus*).
 Doty, 1947a, p. 44 (as *F. furcatus*).
 Rigg and Miller, 1949, p. 331 (as *F. furcatus*).
 Silva, 1953, p. 227 (as *Fucus gardneri*).

Distribution.

- Pacific Coast: Sitka, Alaska, to San Luis Obispo County, California.
 Local: British Columbia: Strait of Georgia; Campbell R.; Victoria (UC 763469); Sooke (UC 463997); Nanaimo (UC 389929).
 Washington: Neah B.; Rosario Beach (UC 910649); Seattle (UC 395280); San Juan I. (UC 395257); Whidbey I., Juan de Fuca Strait.

* *Fucus gardneri* Silva is an extremely variable species. For the present, and until such time as a more complete study has been made of the genus, species, and forms already described, the various entities have been retained. The distinctness of the various forms, however, is questionable, and for this reason Silva (1953) did not formally make all the transfers.

New Records.

British Columbia: Mayne I., June 1914 (V 1466, 1467).
Comox, June 1915 (CAN 1170). Ucluelet, 1909 (CAN 1171).

Habitat.

On rocks in the middle and lower intertidal zones.

Fucus gardneri* f. *latifrons* (Gardner) Scagel, comb. nov.References.*

Gardner, 1922, p. 25 (as *F. furcatus* f. *latifrons*).
Setchell and Gardner, 1925, p. 670 (as *F. furcatus* f. *latifrons*).

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Channel Rocks.

New Records.

Washington: Friday Harbor, July 1925 (UBC 352; UW 64036, 113054, 137796; UC 402146, 395268). Seattle (UC 395276).

Habitat.

On rocks in the middle and lower intertidal zones.

Fucus gardneri* f. *linearis* (Gardner) Scagel, comb. nov.References.*

Gardner, 1922, p. 19 (as *F. furcatus* f. *linearis*).
Setchell and Gardner, 1925, p. 672 (as *F. furcatus* f. *linearis*).

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Tracyton (UC 201142).

Habitat.

On rocks in the lower intertidal zone.

Fucus gardneri* f. *nigricans* (Gardner) Scagel, comb. nov.References.*

Gardner, 1922, p. 21 (as *F. furcatus* f. *nigricans*).
Setchell and Gardner, 1925, p. 671 (as *F. furcatus* f. *nigricans*).

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Cattle Point (UC 201195).

Habitat.

On rocks in the middle and lower intertidal zones.

Fucus gardneri f. reflexus (Gardner) Scagel, comb. nov.*References.*

Gardner, 1922, p. 23 (as *F. furcatus* f. *reflexus*).

Setchell and Gardner, 1925, p. 669 (as *F. furcatus* f. *reflexus*).

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Point Defiance (UBC 358-9; UW 64033, 137800; UC 402148, 201161); Seattle (UC 395278); Tracyton (UC 395283).

New Records.

Washington: Cattle Point, July 1910 (UBC 357; UC 800598, 395251).

Habitat.

On rocks in the lower intertidal zone.

Fucus gardneri f. rigidus (Gardner) Scagel, comb. nov.*References.*

Gardner, 1922, p. 24 (as *F. furcatus* f. *rigidus*).

Setchell and Gardner, 1925, p. 668 (as *F. furcatus* f. *rigidus*).

Connell, 1928, p. 100 (as *F. furcatus* f. *rigidus*).

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Horswell Channel.

Washington: Whidbey I. (UW 64046); Port Townsend; Channel Rocks (UC 132735); Cattle Point (UC 201214).

Habitat.

On rocks in the lower intertidal zone.

Fucus gardneri f. variabilis (Gardner) Scagel, comb. nov.*References.*

Gardner, 1922, p. 26 (as *F. furcatus* f. *variabilis*).

Setchell and Gardner, 1925, p. 669 (as *F. furcatus* f. *variabilis*).

Connell, 1928, p. 100 (as *F. furcatus* f. *variabilis*).

Distribution.

Pacific Coast: Sitka, Alaska, to Southern British Columbia.

Local: British Columbia: Campbell R.; Sooke (UC 463998).

Habitat.

On rocks in the middle intertidal zone.

Fucus membranaceus f. limitatus Gardner, 1922: 35.*References.*

- Gardner, 1922, p. 35.
 Setchell and Gardner, 1925, p. 675.
 Connell, 1928, p. 100.

Distribution.

- Pacific Coast: Southern British Columbia to Northern Washington.
 Local: British Columbia: Horswell Channel.
 Washington: Point Defiance (UBC 364; UW 64041, 137813; UC 402155).

Habitat.

- On rocks and wood in the upper intertidal zone.

Fucus membranaceus Gardner f. **membranaceus**, 1922: 32.*References.*

- Gardner, 1922, p. 32 (as *F. membranaceus*).
 Setchell and Gardner, 1925, p. 673 (as *F. membranaceus*).

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: Washington: Puget Sound.

Habitat.

- On rocks in the intertidal zone.

Pelvetia fastigiata (J. Agardh) DeToni, 1895: 215.*References.*

- Harvey, 1852, p. 68 (as *Fucus fastigiatus*).
 DeToni, 1895, p. 215.
 Holz, 1903, p. 23.
 Gardner, 1910, p. 130.
 Muenscher, 1917, p. 276.
 Setchell and Gardner, 1925, p. 701.
 Connell, 1928, p. 100.
 Moore, 1928, p. 419.
 Smith, 1944, p. 154.
 Dawson, 1945d, p. 65; 1951, p. 52.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Horswell Channel.

Habitat.

- On rocks in the middle intertidal zone.

Pelvetiopsis limitata (Setchell) Gardner f. ***limitata***, 1913: 321.

References.

- Gardner, 1910, p. 127 (as *P. limitata* and *P. l. f. typica*); 1913, p. 321 (as *P. limitata* and *P. l. f. typica*).
 Collins, 1913, p. 111 (as *P. limitata*).
 Muenscher, 1917, p. 276 (as *P. limitata*).
 Setchell and Gardner, 1925, p. 703 (as *P. limitata* and *P. l. f. typica*).
 Smith, 1944, p. 155 (as *P. limitata*).
 Sanborn and Doty, 1947, p. 33 (as *P. limitata*).
 Doty, 1947a, p. 45 (as *P. limitata* and *P. l. f. typica*).

Distribution.

- Pacific Coast: Hope I., British Columbia, to Carmel, California.
 Local: British Columbia: West Coast Vancouver I. (V 1279); Port Renfrew (UC 763503).
 Washington: Neah B. (UC 910618).

New Records.

- British Columbia: Hope I., 11 August 1953 (RFS 956).
 Ucluelet, 20 July 1909 (V 1459; UC 277417; CAN 642).
 Amphitrite Point, 20 May 1909 (CAN 1158). Clayoquot Sound (UC 464042).
 Washington: Waadah I., 7 August 1952 (RFS 141L).

Habitat.

- On rocks in the extreme upper intertidal zone on exposed regions of the open coast.

Family 2. CYSTOSEIRACEAE

Cystoseira geminata C. Agardh, 1824: 286.

References.

- C. Agardh, 1824, p. 286.
 J. Agardh, 1848, p. 232 (as *Cystophyllum geminatum*).
 Harvey, 1852, p. 122; 1862, p. 163 (as *Cystophyllum lepidium*).
 Saunders, 1901b, p. 432 (as *C. lepidium*).
 Setchell and Gardner, 1903, p. 285; 1925, p. 706 (as *Cystophyllum geminatum*).
 Collins, 1913, p. 111 (as *Cystophyllum geminatum*).
 Muenscher, 1917, p. 276 (as *Cystophyllum geminatum*).
 Silva, 1950, p. 262 (as *Cystophyllum geminatum*).
 Fensholt, 1955, p. 313.
 Scagel, 1956, p. 8.

Distribution.

Pacific Coast: Bering Sea to Northern Washington.

Local: British Columbia: Port Renfrew; Esquimalt; Victoria (V 1256; CAN 85, 620, 1213, 1616; UC 90964); Banks I.; Departure B. (UC 277431).

Washington: Friday Harbor (UW 63988, 64620-1; UC 27823); Whidbey I. (UC 98842); Puget Sound; Smith I.

New Records.

British Columbia: Ucluelet, 1909 (CAN 1612). Gordon Head, 31 May 1887 (CAN 229). Departure B., 26 June 1908 (CAN 228, 514, 1614, 1615). Queen Charlotte Is., 1911 (V 1255). Comox, 18 June 1893 (CAN 543). White Rock, 7 May 1944 (RFS 245). Sidney, 16 January 1913 (CAN 629, 1632); 5 September 1917 (CAN 643). Rebecca Spit, 6 September 1947 (RFS 336). Mayne I., 1914 (V 1254). Sooke, 1 August 1893 (CAN 542). Striae Point, 25 July 1953 (RFS 810).

Washington: Rocky B., 12 July 1949 (RFS 349, 428).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Family 3. SARGASSACEAE

**Sargassum muticum* (Yendo) Fensholt, 1955: 306.

References.

Yendo, 1905a, p. 158; 1907, p. 102 (as *S. kjellmanianum* f. *muticum*).

Kincaid, Stone and Osborne, 1954a, p. 1; 1954b, p. 1 (as *S. kjellmanianum*).

Fensholt, 1955, p. 306.

Scagel, 1956, p. 5.

Distribution.

Pacific Coast: Nanaimo, British Columbia, to Coos B., Oregon.

Local: British Columbia: Nanaimo; White Rock; Buccaneer B.; Comox B.; Ladysmith Harbour; Deep B.; Nanoose B.; Booth B.

Washington: Rocky B.; Andrews B.; Hood Canal; Tokeland; Oysterville; Neah B.; Jeckyll Lagoon; Argyle Lagoon.

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

* *Sargassum muticum* (Yendo) Fensholt is a Japanese species which has apparently been introduced with young oysters to this Coast. Although it was noticed somewhat earlier in the vicinity of Coos Bay, Oregon, it was first recorded by Dr. Dorothy E. Fensholt (1955) from the vicinity of Nanaimo, British Columbia, and Rocky Bay and Andrews Bay, San Juan I., Washington. It has subsequently been identified by Dr. E. Y. Dawson from specimens collected by Kincaid, Stone, and Osborne (1954a and 1954b) in various parts of Willapa Bay, Washington and its occurrence has been suggested in Hood Canal. Because of its similarity to *Cystoseira geminata*, this species of *Sargassum* has probably been overlooked elsewhere and will undoubtedly be found to have a much wider distribution (See Scagel, 1956) than is indicated on the basis of the present records.

Phylum 3. **RHODOPHYCOPHYTA**
(RED ALGAE)

Class 1. **RHODOPHYCEAE**

Subclass 1. *BANGIOPHYCIDAE*

Order 1. **GONIOTRICHALES**

Family 1. **GONIOTRICHACEAE**

Goniotrichum cornu-cervi (Reinsch) Hauck, 1885: 519.

References.

- Hauck, 1885, p. 519.
Kylin, 1925, p. 6.
Hollenberg, 1948, p. 156.

Distribution.

Pacific Coast: Northern Washington to Santa Cruz, California.

Local: Washington: Brown I.; Shaw I.; Canoe I.; Peavine Pass; Friday Harbor (UC 440253).

New Records.

Washington: West Beach, 3 September 1949 (REN 120).

Habitat.

Epiphytic on other algae and on worm tubes in the subtidal zone at a depth of 5 to 10 fathoms.

Goniotrichum elegans (Chauvin) Zanardini, 1847: 69.

References.

- Zanardini, 1847, p. 69.
Kylin, 1925, p. 6; 1941, p. 3.
Smith, 1944, p. 161.
Dawson, 1944a, p. 251; 1952a, p. 3.
Taylor, 1945, p. 132 (as *G. alsidii*).

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Brown I.; Canoe I.; Peavine Pass; Shaw I.; Friday Harbor.

New Records.

Washington: Mukkaw B., 21 August 1949 (REN 196).

Habitat.

Epiphytic on other algae and growing on wood, hydroids, and worm tubes in the subtidal zone at a depth of 5 to 10 fathoms.

Order 2. **BANGIALES**Family 1. **BANGIACEAE****Erythrotrichia kylinii** Gardner, 1927a: 236.*References.*

- Setchell and Gardner, 1903, p. 292 (as *E. ceramicola*).
 Collins, 1913, p. 112 (as *E. ceramicola*).
 Kylin, 1925, p. 8 (as *E. bertholdii*).
 Gardner, 1927a, p. 236.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: British Columbia: Amphitrite Point; Ucluelet.
 Washington: Brown I.; Shaw I.; Peavine Pass.

Habitat.

Epiphytic on other algae and on worm tubes in the lower intertidal and upper subtidal zones to a depth of 5 to 10 fathoms.

Erythrotrichia parksii var. **minor** Gardner, 1927a: 239.*References.*

- Gardner, 1927a, p. 239.

Distribution.

- Pacific Coast: Southern British Columbia to Northern Washington.
 Local: British Columbia: Port Renfrew (UC 273863).
 Washington: Neah B. (UW 64008; UC 392714, 402231).

Habitat.

Epiphytic on *Cryptosiphonia*.

Erythrocladia irregularis Rosenvinge, 1909: 73.*References.*

- Rosenvinge, 1909, p. 73.
 Kylin, 1925, p. 9.
 Smith, 1944, p. 166.
 Dawson, 1944a, p. 251; 1952a, p. 5.
 Doty, 1947b, p. 159.

Distribution.

- Pacific Coast: Northern Washington to Mexico.
 Local: Washington: Shaw I.; Peavine Pass.

Habitat.

Epiphytic on other algae and worm tubes in the subtidal zone to a depth of 5 to 10 fathoms.

Erythrocladia subintegra Rosenvinge, 1909: 73.*References.*

- Rosenvinge, 1909, p. 73.
 Kylin, 1925, p. 9; 1941, p. 3.
 Smith, 1944, p. 166.
 Dawson, 1945d, p. 65; 1952a, p. 5.
 Doty, 1947b, p. 159.
 Hollenberg, 1948, p. 156.

Distribution.

Pacific Coast: Northern Washington to Mexico.
 Local: Washington: Shaw I.; Peavine Pass.

New Records.

Washington: Indian Cove, 26 June 1954 (RFS 162L).
 Mukkaw B., 21 August 1949 (REN 179).

Habitat.

Epiphytic on other algae and on worm tubes in the subtidal zone to a depth of 5 to 10 fathoms.

Bangia fuscopurpurea (Dillwyn) Lyngbye, 1819: 83.*References.*

- Lyngbye, 1819, p. 83.
 Saunders, 1901b, p. 432 (as *B. atropurpurea* f. *fuscopurpurea*).
 Setchell and Gardner, 1903, p. 288 (as *B. atropurpurea* f. *fuscopurpurea*).
 Collins, 1913, p. 111.
 Kylin, 1925, p. 6.
 Smith, 1933, p. 124; 1950, p. 611.
 Taylor, 1945, p. 132.
 Rigg and Miller, 1949, p. 331.
 Dawson, 1952a, p. 13.

Distribution.

Pacific Coast: Northern British Columbia to Costa Rica.
 Local: British Columbia: Victoria (V 1302); Port Renfrew.
 Washington: Orcas I. (UC 92610); Whidbey I. (UC 92609); Pleasant Beach; Seattle (UC 92608);
 Neah B.

New Records.

British Columbia: Sidney, 1913 (V 1300); October, 1917 (V 1301); August 27, 1917 (CAN 35); 1912 (CAN 1079).
Mayne I., June 1914 (CAN 53). Mazzaredo Is., 26 July 1953 (RFS 624H).

Washington: Point Caution, 25 May 1949 (RFS 312). Brown I., 5 June 1949 (RFS 357). Friday Harbor, 10 August 1949 (RFS 449).

Habitat.

On old wood, piles and rocks in the upper intertidal zone.

Bangia tenuis Gardner, 1927a: 236.

References.

Gardner, 1927a, p. 236.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Orcas I.

Habitat.

Floating in salt water pond.

Porphyra abyssicola Kjellman, 1883: 191.

References.

Kjellman, 1883, p. 191.

Hus, 1902, p. 223.

Setchell and Gardner, 1903, p. 291.

Collins, 1913, p. 112.

Kylin, 1925, p. 8.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Victoria.

Washington: Whidbey I. (UC 95520); Friday Harbor.

Habitat.

Epiphytic on *Zostera*.

Porphyra amplissima (Kjellman) Setchell and Hus, *in* Hus, 1900: 67.

References.

Kjellman, 1883, p. 188 (as *Diploderma amplissimum*).

Hus, 1900, p. 67; 1902, p. 218.

Setchell and Gardner, 1903, p. 290.

Collins, 1913, p. 112.

Kylin, 1925, p. 8.

Distribution.

Pacific Coast: Amaknak I., Alaska, to Northern Washington.

Local: British Columbia: Sooke (UC 464017); Clayoquot Sound (UC 464021); Amphitrite Point; Ucluelet; Table I. (UC 65131; 634023).

Washington: Coupeville (UC 95528); Whidbey I. (UC 95525); Friday Harbor; Neah B. (UC 389970).

New Records.

British Columbia: Comox, 1915 (V 1432).

Habitat.

On rocks in the upper subtidal zone.

Porphyra lanceolata (Setchell and Hus) G. M. Smith, in Smith and Hollenberg, 1943: 213.

References.

Hus, 1902, p. 208 (as *P. perforata* f. *lanceolata*).

Kylin, 1925, p. 8 (as *P. perforata* f. *lanceolata*).

Smith and Hollenberg, 1943, p. 213.

Smith, 1944, p. 170.

Doty, 1947b, p. 160.

Distribution.

Pacific Coast: Northern Washington to Carmel, California.

Local: Washington: Kanaka B.

New Records.

Washington: Mukkaw B., 21 August 1949 (REN 176).

Habitat.

On rocks in the intertidal zone.

Porphyra miniata* f. *cuneiformis Setchell and Hus, in Hus, 1900: 68.

References.

Hus, 1900, p. 68; 1902, p. 218.

Setchell and Gardner, 1903, p. 291.

Collins, 1913, p. 112.

Kylin, 1925, p. 8.

Smith, 1944, p. 174.

Sanborn and Doty, 1947, p. 34.

Doty, 1947b, p. 161.

Distribution.

Pacific Coast: Gulf of Alaska to Monterey, California.

Local: British Columbia: Victoria (UC 278281, 763474).

Washington: Whidbey I. (UW 137895; UC 95625, 95627); Coupeville; Pleasant Beach (UW 138786).

New Records.

British Columbia: Comox, 1915 (V 1433). Sidney, May 1913 (CAN 11). Departure B., 26 June 1908 (CAN 226, 309). Mayne I., 1914 (CAN 952).

Habitat.

On rocks, wood, and epiphytic on other algae.

Porphyra naiadum Anderson, *in* Blankinship and Keeler, 1892: 148.

References.

Blankinship and Keeler, 1892, p. 148.
 Hus, 1902, p. 212.
 Setchel and Gardner, 1903, p. 290.
 Collins, 1913, p. 112.
 Kylin, 1925, p. 8.
 Knox, 1926, p. 125.
 Smith, 1944, p. 169.
 Taylor, 1945, p. 133.
 Dawson, 1945d, p. 65; 1951, p. 52.
 Sanborn and Doty, 1947, p. 34.
 Doty, 1947b, p. 160.
 Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Northern British Columbia to Mexico.
 Local: British Columbia: Sidney (UC 277809); Sooke (UC 464035). Victoria (V 1436, 1437; CAN 52, 214; UC 68304); Port Renfrew; Amphitrite Point (UC 277800).
 Washington: Coupeville; Whidbey I. (UC 95641); Brown I. (UW 64592); San Juan I. (UW 70541, 64180; UC 389971); Seattle; Neah B.

New Records.

British Columbia: Sidney, 24 October 1916 (V 1438-1440); 1917 (CAN 33); 1914 (CAN 55); 1912 (CAN 221). Departure B., July 1887 (CAN 79, 827).
 Washington: Minnesota Reef, 28 May 1949 (RFS 85). False B., 29 May 1949 (RFS 86); 12 July 1949 (RFS 493). Ballard Beach (UW 64625). Mazzaredo Is., 26 July 1953 (RFS 937).

Habitat.

Epiphytic on the leaves of *Zostera* and *Phyllospadix*.

Porphyra nereocystis Anderson, *in* Blankinship and Keeler, 1892: 149.

References.

Blankinship and Keeler, 1892, p. 149.
 Hus, 1900, p. 65; 1902, p. 212.

References—Concluded

- Setchell and Gardner, 1903, p. 290.
 Collins, 1913, p. 112.
 Kylin, 1925, p. 8.
 Smith, 1944, p. 171.
 Sanborn and Doty, 1947, p. 34.
 Doty, 1947b, p. 160.

Distribution.

- Pacific Coast: Uyak B., Alaska, to San Pedro, California.
 Local: British Columbia: Victoria.
 Washington: Coupeville; Whidbey I. (UW 137896;
 UC 95664, 95677); Friday Harbor.

New Records.

- British Columbia: Sidney, 26 September 1917 (V 1434);
 1912 (CAN 23, 31, 830).

Habitat.

- Epiphytic on the stipe of *Nereocystis*.

Porphyra perforata* J. Agardh f. *perforata*, 1883: 69.References.*

- Harvey, 1858, p. 53 (as *P. vulgaris*); 1862, p. 176 (as *P. vulgaris*).
 Agardh, 1883, p. 69 (as *P. perforata*).
 Hus, 1900, p. 63 (as *P. perforata*); 1902, p. 202 (as *P. perforata*).
 Setchell and Gardner, 1903, p. 289 (as *P. perforata*).
 Collins, 1913, p. 112 (as *P. perforata*).
 Kylin, 1925, p. 7 (as *P. perforata*).
 Connell, 1928, p. 100 (as *P. perforata*).
 Smith, 1944, p. 172 (as *P. perforata*).
 Dawson, 1944a, p. 253; 1945d, pp. 60 and 65; 1952a, p. 17;
 1952b, p. 431 (as *P. perforata*).
 Sanborn and Doty, 1947, p. 33 (as *P. perforata*).
 Doty, 1947b, p. 161 (as *P. perforata*).
 Rigg and Miller, 1949, p. 331 (as *P. perforata*).

Distribution.

- Pacific Coast: Shumagin Is., Alaska, to Mexico.
 Local: British Columbia: Esquimalt (UC 68305); Port Renfrew; Departure B.; Cape Lazo (CAN 1018); Victoria (UC 95685, 277807).
 Washington: Whidbey I. (UW 137891; UC 95687);
 San Juan I. (UW 64175; UC 389962); Orcas I.;
 Neah B. (UC 389964); Port Townsend (UC 95686).

New Records.

British Columbia: Mayne I., 1914 (CAN 59). Beacon Hill, 13 July 1913 (CAN 13, 18, 80); July 1918 (CAN 1090, 1097). Whytecliff, 18 April 1949 (RFS 619). Sidney, 1917 (CAN 32); 1913 (CAN 829). Comox, June 1916 (CAN 50).

Washington: Point Caution, 25 May 1949 (RFS 219, 319-321). Canoe I., 13 July 1907 (UW 64323-4). Turn I., 28 May 1949 (RFS 354). False B., 11 July 1949 (RFS 494). Smith I., 28 July 1949 (RFS 495). Mukkaw B., 21 August 1949 (REN 181).

Habitat.

On rocks and epiphytic on other algae in the intertidal and upper subtidal zones.

***Porphyra perforata* f. *segregata* Setchell and Hus, in Hus, 1900: 64.**

References.

Hus, 1900, p. 64; 1902, p. 207.
Setchell and Gardner, 1903, p. 290.
Collins, 1913, p. 112.
Kylin, 1925, p. 7.
Smith, 1944, p. 172.

Distribution.

Pacific Coast: Southern British Columbia to Northern California.

Local: British Columbia: Vancouver I. (UC 464020).

Washington: Whidbey I. (UC 95731); Seattle (UC 763472); Neah B. (UC 389966).

New Records.

British Columbia: Point Holmes, 1893 (CAN 828).

Habitat.

On rocks and epiphytic on other algae in the intertidal zone.

* ***Porphyra umbilicalis* (Setchell and Gardner) Collins, 1913: 112.**

References.

Setchell and Gardner, 1903, p. 289 (as *P. laciniata* f. *umbilicalis*).
Collins, 1913, p. 112.

Distribution.

Pacific Coast: St. Paul Island, Alaska, to Southern British Columbia.

Local: British Columbia: Victoria; Departure B., (V 1430, 1431; CAN 312, 1021).

Habitat.

On rocks in the intertidal zone.

* See *Conchocellis rosea* Batters, p. 138.

Porphyra variegata (Kjellman) Hus, 1900: 69.*References.*

- Kjellman, 1889, p. 33 (as *Diploderma variegatum*).
 Hus, 1900, p. 69; 1902, p. 225.
 Setchell and Gardner, 1903, p. 291.
 Collins, 1913, p. 112.
 Kylin, 1925, p. 8.
 Smith, 1944, p. 173.
 Sanborn and Doty, 1947, p. 34.
 Doty, 1947b, p. 161.

Distribution.

- Pacific Coast: Southern British Columbia to Monterey, California.
 Local: British Columbia: Victoria.
 Washington: Whidbey I. (UBC 1265; UW 138699; UC 95749, 95745, 95751); Puget Sound.

New Records.

- Washington: West Beach, 3 September 1949 (REN 128);
 12 August 1950 (REN 425). Mukkaw B., 21 August 1949 (REN 180).

Habitat.

- On rocks in the subtidal zone.

Porphyrella gardneri Smith and Hollenberg, 1943: 215.*References.*

- Smith and Hollenberg, 1943, p. 215.
 Smith, 1944, p. 175.
 Doty, 1947b, p. 161.

Distribution.

- Pacific Coast: Northern British Columbia to Monterey, California.

New Records.

- British Columbia: Hope I. (on *Laminaria setchellii*), 26 June 1953 (RFS 578). Mazzaredo Is., 26 July 1953 (RFS 702H).
 Washington: Waadah I. (on *Laminaria setchellii*), 15 July 1954 (RFS 165L).

Habitat.

- Epiphytic on *Laminaria setchellii* and *Egregia menziesii* subsp. *menziesii*.

Porphyropsis coccinea (J. Agardh) Rosenvinge, 1909: 69.

References.

Rosenvinge, 1909, p. 69.

Kylin, 1925, p. 9.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Peavine Pass; Friday Harbor.

Habitat.

On worm tubes in the subtidal zone at a depth of 5 to 10 fathoms.

Subclass 2. *FLORIDIOPHYCIDAE*

Order 2. *NEMALIONALES*

Family 1. *ACROCHAETIACEAE*

Acrochaetium desmarestiae Kylin, 1925: 10.

References.

Kylin, 1925, p. 10.

Drew, 1928, p. 168 (as *Rhodochorton desmarestiae*).

Papenfuss, 1945, p. 308.

Doty, 1947b, p. 162.

Distribution.

Pacific Coast: Northern Washington to Oregon.

Local: Washington: Canoe I.; Turn I.; Kanaka B. (UW 64199; UC 402286).

New Records.

Washington: Hein Bank, 10 August 1954 (RFS 183L).

Habitat.

Epiphytic on ligulate species of *Desmarestia* in the subtidal zone at a depth of 5 to 10 fathoms.

Acrochaetium erythrophyllum Jao, 1937: 112.

References.

Jao, 1937, p. 112.

Papenfuss, 1947b, p. 436.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Port Angeles.

Habitat.

Endophytic in *Erythrophyllum* in the subtidal zone.

Acrochaetium macounii (Collins) Hamel, 1928b: 184.*References.*

- Collins, 1913, p. 113 (as *Chantrasia macounii*).
 Hamel, 1928b, p. 184.
 Drew, 1928, p. 184 (as *Rhodochorton macounii*).
 Smith, 1944, p. 181.
 Papenfuss, 1945, p. 315.

Distribution.

- Pacific Coast: Southern British Columbia to Carmel Bay,
 California.
 Local: British Columbia: Vancouver Island.

Habitat.

- Epiphytic on *Haplogloia andersonii*.

Acrochaetium pacificum Kylin, 1925: 11.*References.*

- Kylin, 1925, p. 11.
 Drew, 1928, p. 169 (as *Rhodochorton pacificum*).
 Papenfuss, 1945, p. 310; 1947b, p. 435.
 Doty, 1947b, p. 162.
 Dawson, 1925a, p. 29; 1953a, p. 124.

Distribution.

- Pacific Coast: Northern British Columbia to Mexico.
 Local: Washington: Brown I.; Canoe I.; Turn I.; Shaw I.;
 Peavine Pass.

New Records.

- British Columbia: Mazzaredo Is., 26 July 1953 (RFS 603H).
 Washington: Mukkaw B., 21 August 1949 (REN 208).

Habitat.

- Epiphytic on various red algae, *Agarum fimbriatum*, and worm
 tubes and shells in the subtidal zone at a depth of 5 to
 10 fathoms.

Acrochaetium rhizoideum (Drew) Jao, 1937: 102.*References.*

- Drew, 1928, p. 182 (as *Rhodochorton rhizoideum*).
 Jao, 1937, p. 102.
 Smith, 1944, p. 180.
 Papenfuss, 1945, p. 317; 1947b, p. 436.
 Dawson, 1952a, p. 23.

Distribution.

- Pacific Coast: Northern Washington to Mexico.
 Local: Washington: Bell I.

Habitat.

Epiphytic on *Codium* and *Cystoseira* in the lower intertidal and upper subtidal zones.

Acrochaetium subimmersum (Setchell and Gardner) Papenfuss, 1945: 318.

References.

Setchell and Gardner, 1903, p. 347 (as *Rhodochorton subimmersum*).

Kylin, 1925, p. 45 (as *Rhodochorton subimmersum*).

Drew, 1928, p. 191 (as *Rhodochorton subimmersum*).

Smith, 1944, p. 185 (as *Rhodochorton subimmersum*).

Papenfuss, 1945, p. 318.

Dawson, 1946, p. 54.

Distribution.

Pacific Coast: Northern Washington to Carmel, California.

Local: Washington: Whidbey I. (UC 96094).

New Records.

Washington: West Beach, 24 August 1949 (REN 221).

Habitat.

Endophytic in *Grateloupia* and other foliose red algae.

Acrochaetium vagum (Drew) Jao, 1937: 111.

References.

Drew, 1928, p. 188 (as *Rhodochorton vagum*).

Jao, 1937, p. 111.

Papenfuss, 1945, p. 318; 1947b, p. 436.

Distribution.

Pacific Coast: Northern Washington to Moss Beach, California.

Local: Washington: Cape Flattery (UC 294546); False B.

Habitat.

Endophytic in *Pterosiphonia bipinnata* var. *bipinnata* in the lower intertidal zone.

Acrochaetium variabile (Drew) G. M. Smith, 1944: 179.

References.

Drew, 1928, p. 174 (as *Rhodochorton variabile*).

Smith, 1944, p. 179.

Papenfuss, 1945, p. 311.

Doty, 1947b, p. 162.

Dawson, 1952a, p. 29; 1954a, p. 4.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: San Juan I.

Habitat.

Epiphytic on various larger red and brown algae, including *Pterygophora* and species of *Laminaria*.

Kylinia arcuata (Drew) Kylin, 1944: 13.

References.

Drew, 1928, p. 165 (as *Rhodochorton arcuatum*).

Kylin, 1944, p. 13.

Dawson, 1944a, p. 255 (as *Rhodochorton arcuatum*); 1952a, p. 31.

Papenfuss, 1945, p. 321 (as *Chromastrum arcuatum*); 1947b, p. 436.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Cape Flattery.

Habitat.

Epiphytic on *Pterosiphonia bipinnata* var. *bipinnata*, *Pterochondria woodii*, and species of *Polysiphonia*.

Kylinia hirsuta (Drew) Kylin, 1944: 13.

References.

Collins, 1913, p. 167 (as *Chantrasia hallandica*).

Drew, 1928, p. 166 (as *Rhodochorton hirsutum*).

Kylin, 1944, p. 13.

Papenfuss, 1945, p. 321 (as *Chromastrum hirsutum*); 1947b, p. 437.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Vancouver I.

Habitat.

Epiphytic on species of *Polysiphonia*.

Kylinia moniliformis (Rosenvinge) Kylin, 1944: 16.

References.

Collins, 1913, p. 113 (as *Chantrasia moniliformis*).

Drew, 1928, p. 164 (as *Rhodochorton moniliforme*).

Kylin, 1944, p. 16.

Papenfuss, 1945, p. 322 (as *Chromastrum moniliforme*); 1947b, p. 437.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Qualicum B.

Habitat.

Epiphytic on species of *Polysiphonia*.

Rhodochorton penicilliforme (Kjellman) Rosenvinge, 1894: 66.

References.

Rosenvinge, 1894, p. 66.

Setchell and Gardner, 1903, p. 294 (as *Chantrasia secundata*).

Kylin, 1925, p. 45.

Drew, 1928, p. 176.

Papenfuss, 1945, p. 327.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Spruce I., Alaska, to Northern Washington.

Local: Washington: Canoe I.; Turn I.; San Juan I.; Minnesota Reef; Peavine Pass; Neah B.

Habitat.

Epiphytic on various algae and on worm tubes and hydroids in the subtidal zone to a depth of 5 to 10 fathoms.

Rhodochorton purpureum (Lightfoot) Rosenvinge, 1900: 75.

References.

Rosenvinge, 1900, p. 75.

Saunders, 1901b, p. 440 (as *R. rothii*).

Setchell and Gardner, 1903, p. 347 (as *R. rothii*).

Collins, 1913, p. 127 (as *R. rothii*).

Drew, 1928, p. 177 (as *R. rothii*).

Smith, 1944, p. 182 (as *R. rothii*).

Papenfuss, 1945, p. 327.

Doty, 1947b, p. 162.

Dawson, 1952a, p. 20; 1953a, p. 123.

Distribution.

Pacific Coast: Bering Sea to Mexico.

Local: British Columbia: Victoria (UC 96087).

Washington: Hog I. (UC 96086); Puget Sound; Whidbey I.

Habitat.

On rocks and wood in the upper intertidal zone.

Rhodochorton tenue Kylin, 1925: 44.*References.*

- Kylin, 1925, p. 44.
 Drew, 1928, p. 177.
 Papenfuss, 1945, p. 328.

Distribution.

- Pacific Coast: Northern Washington to Santa Cruz,
 California.
 Local: Washington: San Juan I.

New Records.

- Washington: Point Caution, 23 July 1952 (RFS 99L).
 West Beach, 24 August 1949 (REN 15).

Habitat.

- On rocks in the upper intertidal zone.

Audouinella membranacea (Magnus) Papenfuss, 1945: 326.*References.*

- Kylin, 1925, p. 45 (as *Rhodochorton membranaceum*).
 Drew, 1928, p. 186 (as *Rhodochorton membranaceum*).
 Papenfuss, 1945, p. 326.

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: Canoe I; Turn I.; Peavine Pass.

Habitat.

- On worm tubes and hydroids in the subtidal zone at a depth
 of 5 to 10 fathoms.

***Conchocelis rosea** Batters, 1892b: 25.*References.*

- Batters, 1892b, p. 25.
 Jao, 1937, p. 111.

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: Canoe I.; Griffin B.; Whidbey I.; Port
 Townsend; Long I.; Port Orchard; Crescent B.;
 Seattle.

New Records.

- Washington: Parker Reef, 24 July 1952 (RFS 103L). Salmon
 Bank, 24 August 1954 (RFS 202L).

* According to Drew (1949, 1954 and 1956) *Conchocelis rosea* Batters is a phase in the life-cycle of *Porphyra umbilicalis* (see page 131). Further investigation of Pacific Coast species of *Porphyra* will probably show that the plant regarded as *Conchocelis rosea* on this Coast is likewise a distinct phase in the life-cycle of one or more species of *Porphyra*.

Habitat.

Perforating various empty shells in the subtidal zone at a depth of 5 to 10 fathoms.

Family 2. HELMINTHOCLADIACEAE

Nemalion helminthoides (Velley) Batters, 1902: 59.

References.

Batters, 1902, p. 59.

Smith, 1944, p. 186 (as *N. lubricum*).

Dawson, 1945a, p. 36; 1951, p. 52; 1952a, p. 34; 1953a, p. 125.

Distribution.

Pacific Coast: Sitka, Alaska, to Mexico.

Habitat.

On rocks in the middle and lower intertidal zones.

Cumagloia andersonii (Farlow) Setchell and Gardner, *in* Gardner, 1917: 399.

References.

Gardner, 1917, p. 399.

Smith, 1944, p. 189.

Dawson, 1945d, p. 60.

Sanborn and Doty, 1947, p. 34.

Doty, 1947b, p. 162.

Distribution.

Pacific Coast: Hope I., British Columbia, to Mexico.

Local: British Columbia: Vancouver I. (UC 420919).

New Records.

British Columbia: Departure B., July 1887 (V 1262). Hope I., 11 August 1953 (RFS 968).

Washington: Neah B., 14 August 1914 (UC 64547, 64560, 64551). American Camp Beach, 5 July 1952 (RFS 45L).

Waadah I., 15 July 1954 (RFS 198L). Mukkaw B., 21 August 1949 (REN 200).

Habitat.

On rocks in the upper intertidal zone.

Family 3. CHAETANGIACEAE

Gloiophloea confusa Setchell, 1914b: 118.

References.

Collins, 1913, p. 114 (as *Scinaia furcellata* var. *undulata*).

Setchell, 1914b, p. 118.

References—Concluded

- Kylin, 1925, p. 12.
 Smith, 1944, p. 190.
 Taylor, 1945, p. 145.
 Sanborn and Doty, 1947, p. 35.
 Doty, 1947b, p. 163.
 Dawson, 1952a, p. 48; 1953a, p. 126.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Ucluelet (V 1402; CAN 1005);
 Victoria (UC 163431).
 Washington: Cattle Point.

New Records.

- British Columbia: Long Beach, June 1944 (UBC 951).
 Washington: Waadah I., 15 July 1954 (RFS 164L). Mukkaw
 B., 21 August 1949 (REN 212).

Habitat.

- On rocks in the upper subtidal zone.

Whidbeyella cartilaginea Setchell and Gardner, 1903: 295.*References.*

- Setchell and Gardner, 1903, p. 295.
 Kylin, 1925, p. 12.

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: Whidbey I. (UC 96502).

Habitat.

- Probably on rocks in the subtidal zone.

Family 4. BONNEMAISONIACEAE

***Bonnemaisionia nootkana** (Esper) Silva, 1953: 225.*References.*

- Setchell and Gardner, 1903, p. 325 (as *B. hamifera*).
 Collins, 1913, p. 119 (as *B. hamifera*).
 Kylin, 1925, p. 13 (as *Asparagopsis hamifera*); 1928, p. 22
 (as *B. californica*).
 Gardner, 1927b, p. 335 (as *B. californica*).
 Smith, 1944, p. 192 (as *B. californica*).
 Silva, 1953, p. 225.

* See *Trailliella intricata* Batters, p. 200.

Distribution.

Pacific Coast: Northern British Columbia to Ventura, California.

Local: British Columbia: Victoria.

Washington: Whidbey I. (UC 92637); Puget Sound (UW 64407; UC 92638); Kanaka B. (UC 132878); Neah B. (UC 395474).

New Records.

British Columbia: Parry B., June 1925 (V 1303). Sooke, August 1893 (CAN 102, 142). Mazzaredo Is., 26 July 1953 (RFS 784H).

Washington: Smith I., 10 July 1952 (RFS 53L); 26 July 1948 (REN 302). Mackaye Harbor, 30 June 1949 (RFS 420, 421). Brown I., 9 June 1949 (RFS 450). False B., 10 June 1949 (RFS 621). West Beach, 12 August 1950 (REN 634).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Order 3. **GELIDIALES**Family 1. **GELIDIACEAE**

Gelidium cartilagineum var. **robustum** Gardner, 1927f: 280.

References.

Kylin, 1925, p. 13 (as *G. cartilagineum*).

Gardner, 1927f, p. 280.

Dawson, 1945d, pp. 60 and 65; 1952a, p. 71.

Taylor, 1945, p. 157.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Point Holmes (UC 90762).

Washington: False B.; East Sound (UC 93576).

New Records.

British Columbia: Arbutus Point, 8 June 1944 (RFS 241). Departure B., 15 July 1887 (CAN 74); 12 August 1908 (CAN 310); 5 July 1908 (CAN 353). Beacon Hill, 15 July 1908 (CAN 208); May 1887 (CAN 209).

Washington: Mukkaw B., 21 August 1949 (REN 209). American Camp Beach, 8 July 1952 (RFS 82L).

Habitat.

On rocks in the upper subtidal zone.

Gelidium crinale (Turner) Lamouroux, 1825: 191.*References.*

- Lamouroux, 1825, p. 191.
 Setchell and Gardner, 1903, p. 295.
 Collins, 1913, p. 114 (also as *G. amansii*).
 Kylin, 1925, p. 13 (as *G. amansii*).
 Connell, 1928, p. 100 (as *G. amansii*).
 Dawson, 1944a, p. 259; 1945a, p. 38; 1952a, p. 64; 1953a, p. 128.
 Taylor, 1945, p. 155.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Victoria (CAN 207); Departure B. (V 1456); Port Renfrew; Ucluelet.
 Washington: East Sound, Orcas I.

Habitat.

- On rocks in the lower intertidal and subtidal zones.

Order 4. **CRYPTONEMIALES**Family 1. **DUMONTIACEAE****Cryptosiphonia woodii** J. Agardh, 1876: 251.*References.*

- Agardh, 1876, p. 251.
 Setchell and Gardner, 1903, p. 353 (also as *C. grayana*).
 Collins, 1913, p. 128.
 Kylin, 1925, p. 14; 1930, p. 23.
 Smith, 1944, p. 200.
 Sanborn and Doty, 1947, p. 35.
 Doty, 1947b, p. 163.

Distribution.

- Pacific Coast: Unalaska I., Alaska, to Southern California.
 Local: British Columbia: Clayoquot Sound (UC 464016); Victoria; Point Holmes (CAN 68); Ucluelet (UC 277735).
 Washington: Point Caution; Whidbey I. (UC 93243).

New Records.

- British Columbia: Departure B., 26 June 1908 (CAN 947).
 Queen Charlotte Is., 1911 (CAN 106). Sidney, 1913 (V 1357; CAN 12); 1917 (CAN 289). N. Deer I., 5 July 1947 (RFS 307, 382, 402, 1012L). Whytecliff, 18 April 1949 (RFS 408-410). Mayne I., June 1914 (CAN 56).
 Ucluelet, 20 May 1909 (CAN 72, 941); 20 July 1909 (CAN 770).
 Washington: Smith I., 10 July 1952 (RFS 40L). False B., 29 May 1949 (RFS 407). Golden Gardens, 5 August 1949 (REN 238). Mukkaw B., 21 August 1949 (REN 185).

Habitat.

On rocks in the intertidal zone.

Thuretellopsis peggiana Kylin, 1925: 13.

References.

Kylin, 1925, p. 13.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Near Friday Harbor (UC 279572).

Habitat.

In the subtidal zone at a depth of about 10 fathoms.

Pikea californica Harvey, 1853: 246.

References.

Harvey, 1853, p. 246.

Collins, 1913, p. 128.

Smith, 1944, p. 202.

Sanborn and Doty, 1947, p. 35.

Doty, 1947b, p. 164 (as *P. nootkana*).

Dawson, 1952a, p. 87; 1953a, p. 130.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Ucluelet (CAN 954; UC 160735);
Port Renfrew (UC 160754).

Washington: San Juan County (UC 395442).

New Records.

Washington: Waadah I., 7 August 1952 (RFS 138L, 524).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Pikea pinnata Setchell, in Collins, Holden and Setchell, 1899: 648.

References.

Collins, Holden and Setchell, 1899 (13), p. 648.

Smith, 1944, p. 202.

Dawson, 1945b, p. 24; 1945c, p. 93.

Doty, 1947b, p. 164.

Distribution.

Pacific Coast: Northern Washington to Coronado, California.

New Records.

Washington: Mukkaw B., 21 August 1949 (REN 27).

Habitat.

On rocks in the lower intertidal and subtidal zones.

Farlowia compressa J. Agardh, 1876: 262.*References.*

J. Agardh, 1876, p. 262.

Smith, 1944, p. 204.

Dawson, 1946, p. 61.

Distribution.

Pacific Coast: Northern Washington to Carmel Bay, California.

New Records.

Washington: Whidbey I. (UC 273876).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Farlowia mollis (Harvey and Bailey) Farlow and Setchell, *in* Collins, Holden and Setchell, 1901: 898.*References.*Harvey and Bailey, 1851, p. 372 (as *Gigartina mollis*).Harvey, 1853, p. 175 (as *Gigartina mollis*); 1862, p. 173 (as *Gigartina mollis*).Bailey and Harvey, 1862, p. 163 (as *Gigartina mollis*).

Collins, Holden and Setchell, 1901 (18), p. 898.

Setchell and Gardner, 1903, p. 354.

Collins, 1913, p. 128.

Kylin, 1925, p. 15.

Connell, 1928, p. 100.

Smith, 1944, p. 204.

Sanborn and Doty, 1947, p. 35.

Doty, 1947b, p. 164.

Distribution.

Pacific Coast: Dixon Harbor, Alaska, to Carmel, California.

Local: British Columbia: Port Renfrew; Horswell Channel;

Esquimalt (CAN 185, 197, 175); Departure B.

(CAN 178, 216); Point Holmes (CAN 203, 141);

Sidney (UC 277808); Sooke (UC 464032).

Washington: Whidbey I. (UC 93474, 93470, 651523);

False B.; Point Caution; Channel Rocks (UC 93472);

Puget Sound; San Juan I. (UC 93471); Neah B.

(UC 395435).

New Records.

British Columbia: Comox, 1915 (CAN 265, 327). Sidney, 1913 (CAN 16, 987). Muir Creek, 12 April 1925 (V 1340). Second Beach, 18 April 1949 (RFS 208, 1009L).

Victoria, 1913 (V 1341; CAN 17); 1917 (CAN 42, 174).

New Records—Concluded

Whytecliff, 18 April 1949 (RFS 258, 259, 1006L). Sooke, August 1893 (CAN 173). Klucksiwi R., 14 July 1946 (RFS 308). Uchuelet, 29 July 1909 (CAN 171, 847). Mayne I., June 1914 (CAN 57). Amphitrite Point, 20 May 1909 (CAN 848).

Washington: American Camp Beach, 5 July 1952 (RFS 21L). Waadah I., 7 August 1952 (RFS 144L). Mukkaw B., 21 August 1949 (REN 189). Point Caution, 3 June 1949 (RFS 348). West Beach, 3 September 1949 (REN 123); 24 August 1949 (REN 228); 12 August 1950 (REN 423). Kanaka B., 24 July 1904 (UC 64550).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Dilsea californica (J. Agardh) O. Kuntze, 1891: 892.

References.

Agardh, 1876, p. 265 (as *Sarcophyllis californica*).
Kuntze, 1891, p. 892.
Schmitz, 1897, p. 520.
Setchell, 1901, p. 126 (as *Dilsea pygmaea*).
Setchell and Gardner, 1903, p. 355 (as *Sarcophyllis pygmaea*).
Collins, 1913, p. 128 (as *Sarcophyllis pygmaea*).
Sanborn and Doty, 1947, p. 37.
Doty, 1947b, p. 165.
Papenfuss, 1950b, p. 193.

Distribution.

Pacific Coast: Unga I., Alaska, to San Francisco, California.
Local: Washington: Whidbey I. (UC 651511).

New Records.

British Columbia: Port Renfrew (UC 96323).
Washington: Lopez Pass, 31 July 1952 (RFS 118L). Waadah I., 7 August 1952 (RFS 142L).

Habitat.

On rocks in the lower intertidal and subtidal zones to a depth of several fathoms.

Weeksia fryeana Setchell, 1912a: 254.

References.

Setchell, 1912a, p. 254.
Kylin, 1925, p. 15.

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Orcas I. (UC 96309); San Juan I. (UC 194554); Canoe I. (UC 160728); Point Defiance (UC 274035).

New Records.

Washington: Hein Bank, 9 August 1948 (REN 245). Iceberg Point, 30 July 1952 (RFS 108L, 109L). Salmon Bank, 14 August 1952 (RFS 158L, 159L). Paradise Cove, 30 August 1949 (REN 99, 676). Golden Gardens, 5 August 1949 (REN 370). West Beach, 12 August 1950 (REN 629).

Habitat.

On rocks in the subtidal zone at a depth of about 5 fathoms.

Constantinea simplex Setchell, 1901: 127.*References.*

Setchell, 1901, p. 127; 1906, p. 171.
Smith, 1944, p. 207.
Sanborn and Doty, 1947, p. 35.
Doty, 1947b, p. 165.

Distribution.

Pacific Coast: Northern British Columbia to Carmel, California.
Local: Washington: Neah B. (UC 395492).

New Records.

British Columbia: Striae Point, 25 July 1953 (RFS 900).
Washington: Waadah I., 7 August 1952 (RFS 137L, 545).
Mukkaw B., 21 August 1949 (REN 32).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Constantinea subulifera Setchell, 1906: 172.*References.*

Harvey, 1862, p. 172 (as *C. sitchensis*).
Freeman, 1899b, p. 175 (as *C. sitchensis*).
Saunders, 1901b, p. 441 (as *C. rosa-marina*).
Setchell and Gardner, 1903, p. 356 (as *C. sitchensis*).
Setchell, 1906, p. 172.
Collins, 1913, p. 129.
Kylin, 1925, p. 16.
Connell, 1928, p. 100.
Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Northern British Columbia to Northern Washington.

Distribution—Concluded

Local: British Columbia: Esquimalt (UC 278254); Victoria (CAN 71, 876); Departure B. (V 1518; CAN 767); West Coast Vancouver I.; Nanaimo (UC 389932); Calvert I. (UC 634009); Cordova B. (UC 392837).

Washington: Whidbey I. (UC 93195); Brown I. (UC 276693); Puget Sound; Neah B.; San Juan I.; Mats-Mats B. (UC 93198); Channel Rocks (UC 93194).

New Records.

British Columbia: Cape Lazo (CAN 792). Thomas Point, 16 July 1947 (RFS 325, 356). Sandstone Creek, 10 July 1925 (V 1359). Crescent Beach, 6 February 1946 (V 1360). Qualicum B. (CAN 1067). Striae Point, 25 July 1953 (RFS 161H).

Washington: Lopez I., 30 July 1952 (RFS 106L). Minnesota Reef, 28 May 1949 (RFS 215, 305). Rocky B., 12 July 1949 (RFS 316, 459). Lincoln Park, 8 August 1949 (REN 98). West Beach, 24 August 1949 (REN 217).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Family 2. SQUAMARIACEAE

Peyssonelia pacifica* Kylin, 1925: 25.References.*

Kylin, 1925, p. 25.

Smith, 1944, p. 212.

Dawson, 1944d, p. 102; 1952a, p. 102.

Doty, 1947b, p. 167.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: S. False B.; Friday Harbor (UC 279573).

Habitat.

On shells of molluscs in the intertidal zone.

Family 3. HILDENBRANDIACEAE

Hildenbrandia occidentalis* Setchell, in Gardner, 1917: 393.References.*

Gardner, 1917, p. 393.

Kylin, 1925, p. 27.

Smith, 1944, p. 215.

Doty, 1947b, p. 167.

Distribution.

Pacific Coast: Northern British Columbia to Carmel, California.

Local: Washington: S. False B.; Puget Sound; Neah B. (UC 273739).

Habitat.

On rocks in the upper intertidal zone.

Hildenbrandia prototypus Nardo, 1834: 675.*References.*

Nardo, 1834, p. 675.

Setchell and Gardner, 1903, p. 367.

Smith, 1944, p. 215.

Taylor, 1945, p. 166.

Dawson, 1954, p. 4.

Distribution.

Pacific Coast: Alaska to Panama.

Local: Washington: Whidbey I. (UC 94262); Tracyton (UC 278064).

New Records.

British Columbia: Mazzaredo Is., 26 July 1953 (RFS 780H).

Habitat.

On rocks in the upper intertidal zone.

Hildenbrandia rosea Kützing, 1843: 384.*References.*

Kützing, 1843, p. 384.

Setchell and Gardner, 1924b, p. 787.

Kylin, 1925, p. 27.

Dawson, 1944a, p. 265.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Canoe I.; S. False B.; Peavine Pass; Neah B.; Whidbey I. (UC 389921, 94261).

Habitat.

On rocks in the intertidal and subtidal zones.

Family 4. CORALLINACEAE

Melobesia marginata Setchell and Foslie, *in* Foslie, 1902: 10.*References.*

Foslie, 1902, p. 10.

Setchell and Gardner, 1903, p. 359.

References—Concluded

- Collins, 1913, p. 129 (as *Lithothamnium marginatum*).
 Smith, 1944, p. 219.
 Taylor, 1945, p. 176.
 Doty, 1947b, p. 169.
 Dawson, 1951, p. 52; 1954a, p. 5.
 Mason, 1953, p. 321.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Departure B.
 Washington: Whidbey I.; San Juan I. (UC 745662).

New Records.

- British Columbia: Beacon Hill, 1874 (V 1327).

Habitat.

- Epiphytic on other red algae, including *Laurencia*, *Odonthalia*,
Rhodymenia, *Hymenena*, *Plocamium* and *Ahnfeltia*.

Melobesia mediocris (Foslie) Setchell and Mason, 1943: 95.*References.*

- Setchell and Gardner, 1903, p. 359 (as *M. zosteriolum* f.
mediocris).
 Collins, 1913, p. 129 (as *Lithothamnium mediocre*).
 Setchell and Mason, 1943, p. 95.
 Smith, 1944, p. 219.
 Taylor, 1945, p. 176.
 Doty, 1947b, p. 169.
 Dawson, 1951, p. 52.
 Mason, 1953, p. 320.

Distribution.

- Pacific Coast: Northern British Columbia to Mexico.
 Local: British Columbia: Port Renfrew.
 Washington: Whidbey I.

New Records.

- British Columbia: Mazzaredo Is., 26 July 1953 (RFS 936).
 Washington: Mukkaw B., 21 August 1949 (REN 194).

Habitat.

- Epiphytic on the leaves of *Zostera* and *Phyllospadix*.

Lithothamnium californicum Foslie, 1900b: 3.*References.*

- Foslie, 1900b, p. 3.
 Setchell and Gardner, 1903, p. 358.
 Collins, 1913, p. 129.
 Smith, 1944, p. 221.
 Mason, 1953, p. 324.

Distribution.

Pacific Coast: Southern British Columbia to San Diego, California.

Local: British Columbia: Port Renfrew.

Washington: Channel Rocks (UC 936323); San Juan I.; East Sound (UC 739472).

Habitat.

On rocks in the upper subtidal zone.

Lithothamnium muricatum (Foslie) G. DeToni, 1924: 622.*References.*

Collins, 1913, p. 129 (as *Lithophyllum muricatum*).

DeToni, 1924, p. 622.

Foslie, 1929, p. 36 (as *Lithophyllum muricatum*).

Mason, 1953, p. 325.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Port Renfrew.

Habitat.

On rocks probably in the upper subtidal zone.

Lithothamnium pacificum Foslie, 1906: 10.*References.*

Foslie, 1906, p. 10.

Smith, 1944, p. 221.

Doty, 1947b, p. 170.

Mason, 1953, p. 328.

Distribution.

Pacific Coast: Southern British Columbia to La Jolla, California.

Local: British Columbia: Sooke Inlet (UC 745662).

Washington: Whidbey I. (UC 739417).

Habitat.

On rocks in the upper subtidal zone.

Lithothamnium phymatodeum Foslie, 1902: 3.*References.*

Foslie, 1902, p. 3; 1929, pp. 45 and 52 (as *L. p. f. aquilonium* and *L. p. f. typicum*), pp. 10 and 11 (as *L. p. f. typicum*).

Setchell and Gardner, 1903, p. 358.

Mason, 1953, p. 327.

Distribution.

Pacific Coast: Northern Washington to Pacific Grove, California.

Local: Washington: Whidbey I.

Habitat.

On rocks in the upper subtidal zone.

Polyporolithon conchatum (Setchell and Foslie) Mason, 1953: 317.*References.*

Setchell and Gardner, 1903, p. 358 (as *Lithothamnium conchatum*).

Foslie, 1929, pp. 39 and 54 (as *Lithothamnium conchatum*).

Smith, 1944, p. 222 (as *Lithothamnium conchatum*).

Doty, 1947b, p. 170 (as *Lithothamnium conchatum*).

Mason, 1953, p. 317.

Distribution.

Pacific Coast: Southern British Columbia to San Luis Obispo County, California.

Local: British Columbia: Port Renfrew.

Washington: Whidbey I.; Kanaka B. (UC 745626);
San Juan I. (UC 745671).

Habitat.

Epiphytic on *Calliarthron*.

Polyporolithon parcum (Setchell and Foslie) Mason, 1953: 318.*References.*

Foslie, 1929, pp. 44 and 54 (as *Lithothamnium parcum*).

Smith, 1944, p. 223 (as *Lithothamnium parcum*).

Doty, 1947b, p. 170 (as *Lithothamnium parcum*).

Mason, 1953, p. 318 (as *Lithothamnium parcum*).

Distribution.

Pacific Coast: Northern Washington to Carmel, California.

Local: Washington: Kanaka B. (UC 745626); San Juan I. (UC 745670).

Habitat.

Epiphytic on articulated corallines, especially *Calliarthron*.

Polyporolithon reclinatum (Foslie) Mason, 1953: 319.*References.*

Collins, 1913, p. 129 (as *Lithothamnium reclinatum*).

Foslie, 1929, pp. 45 and 54 (as *Lithothamnium reclinatum*).

Mason, 1953, p. 319.

Dermatolithon

Pacific Coast: Southern British Columbia to La Jolla, California.

Local: British Columbia: Port Renfrew; Seabe (UC 737671).
Washington: Hanaka B. (UC 745050, 747316).

Habitat

Epiphytic on species of *Boudieria* and *Ceramium*.

Dermatolithon dispar* Foslie Foslie, 1900a: 58.References*

Sewall and Gardner, 1903, p. 358 (as *Lithophyllum* *fumidulum*).

Foslie, 1900a, p. 58; 1920, p. 33 (as *Lithophyllum* *dispar*).

Smith, 1944, p. 225 (*Fosliella dispar*).

Dry, 1947, p. 175 (as *Fosliella dispar*).

Mason, 1953, p. 343.

Dawson, 1955, p. 276.

Distribution

Pacific Coast: Northern Washington to La Jolla, California.

Local: Washington: Whidbey I.

Habitat

Epiphytic on various red algae, particularly species of *Alveolaria*.

Lithophyllum decipiens* Foslie Foslie, 1900a: 19.References*

Foslie, 1900a, p. 19; 1920, p. 33.

Sewall and Gardner, 1903, p. 358 (as *Lithophyllum* *incrustans* f. *orbiculare*).

Collins, 1913, p. 129 (as *Lithophyllum* *incrustans* f. *orbiculare*).

Dawson, 1944a, p. 270.

Mason, 1953, p. 338.

Distribution

Pacific Coast: Northern British Columbia to Mexico.

Local: British Columbia: Port Renfrew.

Washington: Kanaka B.: Turn Rock (UC 737631);

Whidbey I. (UC 739421); False B. (UC 745672).

New Records

British Columbia: Mazzaredo Is., 26 July 1953 (RFS 780H).

Habitat

On rocks in the lower intertidal and upper subtidal zones.

Lithophyllum lichenare Mason, 1953: 339.*References.*

Mason, 1953, p. 339.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Kanaka B.

Habitat.

On rocks and other crustaceous coralline algae in the lower intertidal zone.

Lithophyllum neofarlowii Setchell and Mason, 1943: 95.*References.*

Setchell and Gardner, 1903, p. 358 (as *L. farlowii*).

Setchell and Mason, 1943, p. 95.

Smith, 1944, p. 228

Doty, 1947b, p. 170.

Mason, 1953, p. 341.

Distribution.

Pacific Coast: Northern Washington to Cambria, California.

Local: Washington: Turn Rock; Brown I.

Habitat.

On rocks in the lower intertidal zone.

Lithophyllum whidbeyense Foslie, 1906: 21.*References.*

Foslie, 1906, p. 21; 1929, p. 38.

Collins, 1913, p. 129 (as *L. vancouveriense*).

Setchell and Mason, 1943, p. 96.

Mason, 1953, p. 340.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Port Renfrew.

Washington: Kanaka B. (UC 736402); Shaw I. (UC 736399); Whidbey I. (UC 936324, 745689); Puget Sound.

Habitat.

On stones and shells of molluscs in the lower intertidal zone.

Bossiella californica (Decaisne) Silva, 1957: 46.*References.*

Decaisne, 1842, p. 112 (as *Amphiroa californica*).

Harvey, 1853, p. 86 (as *Amphiroa californica*).

References—Concluded

- Yendo, 1902a, p. 714 (as *Cheilosporum californicum*).
 Manza, 1937a, p. 561; 1940, p. 305 (as *Bossea californica*).
 Smith, 1944, p. 233 (as *Bossea californica*).
 Doty, 1947b, p. 169 (as *Bossea californica*).
 Silva, 1957, p. 46.

Distribution.

Pacific Coast: Southern British Columbia to Monterey, California.

New Records.

British Columbia: Ucluelet, 1909 (V 1546).

Habitat.

On rocks in the lower intertidal and subtidal zones.

Bossiella corymbifera (Manza) Silva, 1957: 47.

References.

- Manza, 1937a, p. 562; 1940, p. 305 (as *Bossea corymbifera*).
 Smith, 1944, p. 234 (as *Bossea corymbifera*).
 Doty, 1947b, p. 169 (as *Bossea corymbifera*).
 Silva, 1957, p. 47.

Distribution.

Pacific Coast: Southern British Columbia to Point Lobos, California.

Local: British Columbia: Point No Point; West Coast Vancouver I.

New Records.

- British Columbia: Victoria (UC 790524).
 Washington: Whidbey I. (UC 790538).

Habitat.

On rocks in tide pools and in the subtidal zone.

Bossiella dichotoma (Manza) Silva, 1957: 47.

References.

- Manza, 1937a, p. 562; 1940, p. 307 (as *Bossea dichotoma*).
 Smith, 1944, p. 234 (as *Bossea dichotoma*).
 Dawson, 1945d, p. 65 (as *Bossea frondifera*); 1952a, p. 155 (as *Bossea dichotoma*).
 Doty, 1947b, p. 168 (as *Bossea frondifera*).
 Silva, 1957, p. 47.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

New Records.

British Columbia: Sidney, 1912 (V 1545).

Habitat.

On rocks in the lower intertidal and subtidal zones.

Bossiella plumosa (Manza) Silva, 1957: 47.*References.*

Manza, 1937b, p. 46; 1940, p. 303 (as *Bossea plumosa*).

Smith, 1944, p. 233 (as *Bossea plumosa*).

Doty, 1947b, p. 168 (as *Bossea plumosa*).

Silva, 1957, p. 47.

Distribution.

Pacific Coast: Northern British Columbia to Santa Barbara County, California.

Local: British Columbia: Point No Point.

Washington: Ruby Beach.

New Records.

British Columbia: Mazzaredo Is., 26 July 1953 (RFS 487H).

Habitat.

On rocks and shells in the lower intertidal and upper subtidal zones.

Pachyarthron cretaceum (Postels and Ruprecht) Manza, 1937b: 45.*References.*

Yendo, 1902a, p. 714 (as *Amphiroa cretacea* f. *tasmanica*).

Silva, 1957, p. 48.

Distribution.

Pacific Coast: Unalaska, Alaska, to Northern Washington.

Local: British Columbia: Port Renfrew.

Washington: East Sound, Orcas I. (UC 789570).

Habitat.

Probably in the lower intertidal and subtidal zones.

Serraticardia macmillani (Yendo) Silva, 1957: 48.*References.*

Yendo, 1902a, p. 718 (as *Cheilosporum macmillani*).

Silva, 1957, p. 48.

Distribution.

Pacific Coast: Southern British Columbia to Monterey Peninsula, California.

Local: British Columbia: Port Renfrew.

Habitat.

Probably in the lower intertidal and subtidal zones.

Corallina officinalis var. **chilensis** (Harvey) Kützinger, 1858: 32.*References.*

- Kützinger, 1858, p. 32.
 Harvey, 1847, p. 103 (as *C. chilensis*).
 Yendo, 1902a, p. 718.
 Setchell and Gardner, 1903, p. 365 (as *C. officinalis* f. *robustus*).
 Collins, 1913, p. 130.
 Smith, 1944, p. 230 (as *C. chilensis*).
 Taylor, 1945, p. 200 (as *C. chilensis*).
 Dawson, 1945d, p. 65 (as *C. chilensis*); 1952a, p. 132.
 Doty, 1947b, p. 167 (as *C. chilensis*).

Distribution.

- Pacific Coast: Northern British Columbia to Mexico.
 Local: British Columbia: Vancouver I.; Port Renfrew.

New Records.

- British Columbia: Muir Creek, 12 April 1925 (V 1542).
 Sidney (CAN 912). Amphitrite Point (CAN 1109).
 Table I. (CAN 772). Mazzaredo Is., 26 July 1953
 (RFS 929).

Habitat.

- On rocks in the lower intertidal and upper subtidal zones.

Corallina pilulifera Postels and Ruprecht, 1840: 20.*References.*

- Postels and Ruprecht, 1840, p. 20.
 Yendo, 1902b, p. 30.
 Setchell and Gardner, 1903, p. 366 (as *C. officinalis* f. *pilulifera*).
 Dawson, 1944a, p. 275; 1952a, p. 125 (as *C. pinnatifolia* var. *digitata*).

Distribution.

- Pacific Coast: Alaska to Mexico.

Habitat.

- On rocks in the upper subtidal zone and in tide pools.

Corallina vancouveriensis Yendo, 1902a: 719.*References.*

- Yendo, 1902a, p. 719.
 Collins, 1913, p. 130 (as *C. officinalis* f. *multiramosa*, *C. o. f. aculeata* and *C. o. f. spathulifera*).
 Taylor, 1945, p. 201.
 Doty, 1947b, p. 167 (as *C. densa*).
 Dawson, 1951, p. 52; 1952a, p. 126.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Port Renfrew.

New Records.

British Columbia: Beacon Hill, July 1913 (V 1540; CAN 895, 945). Nanaimo (CAN 946). Ucluelet (CAN 1061).

Habitat.

On rocks in the lower intertidal and upper subtidal zones and in tide pools.

Lithothrix aspergillum J. E. Gray, 1867: 33.*References.*

Gray, 1867, p. 33.

Setchell and Gardner, 1903, p. 359 (as *Amphiroa aspergillum* f. *nana*).

Manza, 1940, p. 26.

Smith, 1944, p. 231.

Taylor, 1945, p. 184.

Dawson, 1945d, p. 65; 1951, p. 52; 1952a, p. 133.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Vancouver I.

Washington: East Sound.

New Records.

British Columbia: Departure B., 24 June 1908 (V 1541; CAN 994). Victoria (CAN 158).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

***Calliarthron pinnulatum** Manza, 1937a: 565.*References.*

Manza, 1937a, p. 565.

Dawson, 1946, p. 71.

Distribution.

Pacific Coast: Northern Washington to Moss Beach, California.

Local: Washington: Puget Sound.

*There is some doubt concerning the taxonomic status of this species. According to Silva (1957) Manza's type is a robust but poorly branched specimen of *Serraticardia macmillanii* from Moss Beach, California. The record from Puget Sound needs confirmation.

Habitat.

On rocks in the lower intertidal and subtidal zones.

Calliarthron regenerans Manza, 1937a: 565.

References.

Manza, 1937a, p. 565; 1940, p. 269.

Doty, 1947b, p. 169.

Silva, 1957, p. 48.

Distribution.

Pacific Coast: British Columbia to Baja California.

New Records.

British Columbia: Sooke (UC 463972); Point No Point;
Port Renfrew (UC).

Washington: Whidbey I. (UC 790549).

Habitat.

On rocks in tide pools and in the subtidal zone.

Calliarthron schmittii Manza, 1937a: 566.

References.

Manza, 1937a, p. 566; 1940, p. 269.

Doty, 1947b, p. 169.

Silva, 1957, p. 48.

Distribution.

Pacific Coast: Northern Washington to San Diego, California

New Records.

Washington: Eagle Point, San Juan I. (UC 974937).

Habitat.

On rocks in tide pools and in the lower intertidal and subtidal zones.

Family 5. GLOIOSIPHONIACEAE

Gloiosiphonia californica (Farlow) J. Agardh, 1885: 10.

References.

Harvey, 1862, p. 173 (as *Halymenia ligulata*); p. 174 (as
G. capillaris).

Agardh, 1885, p. 10.

Setchell and Gardner, 1903, p. 348.

Kylin, 1925, p. 16.

Smith, 1944, p. 209.

Doty, 1947b, p. 166.

Rigg and Miller, 1949, p. 331.

Dawson, 1952, p. 92; 1953a, p. 131.

Distribution.

Pacific Coast: Sitka, Alaska, to Mexico.

Local: British Columbia: Esquimalt (UC 93893); Amphitrite Point (UC 277414); Departure B. (UC 90945).

Washington: Port Angeles; Pleasant Beach (UC 93892); Neah B.

Habitat.

On rocks and wood in the lower intertidal and upper subtidal zones.

Gloiosiphonia capillaris (Hudson) Carmichael, *in* Berkeley, 1883: 45.

References.

Harvey, 1853, p. 202.

Berkeley, 1883, p. 45.

Collins, 1913, p. 127.

Kylin, 1930, p. 10.

Papenfuss, 1950, p. 203.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Amphitrite Point (V 1451; UC 163403); Esquimalt; Departure B. (CAN 527); Comox (CAN 211; UC 160734).

New Records.

British Columbia: Sandstone Creek, 10 August 1925 (V 1452).

Habitat.

In the upper subtidal zone.

Gloiosiphonia verticillaris Farlow, 1889: 3.

References.

Farlow, 1889, p. 3.

Setchell and Gardner, 1903, p. 348.

Collins, 1913, p. 127.

Kylin, 1925, p. 16.

Smith, 1944, p. 209.

Sanborn and Doty, 1947, p. 35.

Doty, 1947b, p. 166.

Distribution.

Pacific Coast: Sitka, Alaska, to Carmel, California.

Local: British Columbia: Port Renfrew (UC 278256); Esquimalt.

Washington: Port Townsend; Whidbey I. (UC 93907, 93906).

New Records.

Washington: West Beach, 3 September 1949 (REN 111);
12 August 1950 (REN 411).

Habitat.

On stones in the upper subtidal zone.

Family 6. ENDOCLADIACEAE

Endocladia muricata (Harvey) J. Agardh, 1847: 10.*References.*

- Agardh, 1847, p. 10.
Harvey, 1853, p. 182; 1862, p. 173.
Setchell and Gardner, 1903, p. 296; p. 297 (as *E. m. f. compressa* and *E. m. f. inermis*).
Collins, 1913, p. 114 (also as *E. m. f. inermis*).
Kylin, 1925, p. 28.
Smith, 1944, p. 211.
Sanborn and Doty, 1947, p. 36.
Doty, 1947b, p. 166.
Rigg and Miller, 1949, p. 331.
Dawson, 1952a, p. 94; 1953a, p. 131.

Distribution.

- Pacific Coast: Shumagin Is., Alaska, to Mexico.
Local: British Columbia: Amphitrite Point (CAN 1071-2);
Port Renfrew; Sooke (CAN 1103); Esquimalt (V 1353; UW 64060; UC 93388); Victoria (V 1350;
CAN 227; UC 90961).
Washington: Friday Harbor (UW 64061; UC 93390);
Neah B. (UW 64058); Whidbey I. (UC 93387).

New Records.

- British Columbia: Sidney, 1913 (V 1352); 1912 (CAN 1096).
Ucluelet, 6 June 1909 (CAN 69, 1063). Comox, 3 May
1887 (CAN 1054).
Washington: Goose I., 27 May 1949 (RFS 309). Waadah I.,
7 August 1952 (RFS 147L, 155L). Point Caution,
25 May 1949 (RFS 310). Mukkaw B., 30 May 1948
(REN 283).

Habitat.

On rocks in the upper intertidal zone.

Gloiopeltis furcata (Postels and Ruprecht) J. Agardh, 1851: 235.*References.*

- Agardh, 1851, p. 235.
Harvey, 1853, p. 183.

References—Concluded

- Saunders, 1901b, p. 440.
 Setchell and Gardner, 1903, p. 348.
 Collins, 1913, p. 127.
 Kylin, 1925, p. 16; 1930, p. 17.
 Sanborn and Doty, 1947, p. 35.
 Doty, 1947b, p. 166.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Aleutian Is., Alaska, to Oregon.
 Local: British Columbia: Port Renfrew; Quatsino Sound (UC 464006); Sooke (UC 464004).
 Washington: Whidbey I. (UC 93883); San Juan I. (UC 93885); Brown I. (UC 763616); Neah B.; Puget Sound; Friday Harbor (UC 402242).

New Records.

- British Columbia: N. Deer I., 4 July 1947 (RFS 115).
 Washington: Friday Harbor, 11 July 1952 (RFS 47L); July 1925 (UBC 950); July 1917 (UW 63870); July 1925 (UW 137747). N. False B., 5 August 1952 (RFS 129L, 130L); 9 July 1949 (RFS 110, 469). Point Caution, 25 May 1949 (RFS 389).

Habitat.

- On rocks in the upper intertidal zone.

Family 7. CRYPTONEMIACEAE

Grateloupia californica Kylin, 1941: 9.*References.*

- Setchell and Gardner, 1903, p. 349 (as *G. cutleriae*).
 Collins, 1913, p. 127 (as *G. cutleriae*).
 Kylin, 1925, p. 18 (as *G. cutleriae*); 1941, p. 9.
 Smith, 1944, p. 239.
 Dawson, 1945d, pp. 60 and 66; 1951, p. 52; 1952b, p. 431.
 Sanborn and Doty, 1947, p. 36.
 Doty, 1947b, p. 170.
 Rigg and Miller, 1949, p. 331 (as *G. cutleriae*).

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Victoria (CAN 20, 320, 323, 766); Esquimalt; Comox (V 1454, 1485; CAN 979).
 Washington: Puget Sound; Whidbey I. (UW 137888; UC 276760); Neah B.; Tracyton (UC 278273); Cattle Point (UC 276617).

New Records.

British Columbia: Departure B., 12 August 1908 (CAN 311);
13 July 1887 (CAN 1042). Point Holmes, 16 June 1893
(CAN 213).

Washington: West Beach, 24 August 1949 (REN 216).
Waadah I., 15 July 1954 (RFS 166L). Lincoln Park,
8 August 1949 (REN 100). Mukkaw B., 21 August
1949 (REN 183). Edmonds, 6 August 1949 (REN 409).

Habitat.

On rocks and epiphytic on other algae in the lower intertidal
and upper subtidal zones and in tidepools.

Grateloupia pinnata (Postels and Ruprecht) Setchell, *in* Collins, Holden
and Setchell, 1901: 947.

References.

Collins, Holden and Setchell, 1901 (19), p. 947.
Setchell and Gardner, 1903, p. 349.
Collins, 1913, p. 127.
Kylin, 1925, p. 18.

Distribution.

Pacific Coast: Sitka, Alaska, to Northern Washington.
Local: British Columbia: Port Renfrew (UC 111654).
Washington: Tracyton; East Sound (UC 651444).

New Records.

Washington: East Sound, July 1925 (UW 67503).

Habitat.

On rocks in the upper intertidal zone.

Cryptonemia borealis Kylin, 1925: 19.

References.

Kylin, 1925, p. 19.
Doty, 1947b, p. 172.

Distribution.

Pacific Coast: Southern British Columbia to Oregon.
Local: Washington: Canoe I. (UC 276741); Peavine Pass;
Whidbey I. (UC 93214); Friday Harbor (UC
276738).

New Records.

British Columbia: S. James I., 4 August 1949 (RFS 187-9,
192, 368, 404, 405).

Washington: Lopez Pass, 31 July 1952 (RFS 116L); 16
August 1948 (REN 247); 19 July 1948 (REN 263);
31 July 1952 (REN 647). West Beach, 3 September
1949 (REN 119). Hein Bank, 9 August 1948 (REN 262).
Paradise Cove, 30 August 1949 (REN 679). Parker
Reef, 19 July 1949 (RFS 367).

Habitat.

On rocks in the subtidal zone and to a depth of 5 to 10 fathoms.

Cryptonemia obovata J. Agardh, 1876: 681.*References.*

- Agardh, 1876, p. 681.
 Saunders, 1901b, p. 440.
 Setchell and Gardner, 1903, p. 352.
 Collins, 1913, p. 128.
 Kylin, 1941, p. 11.
 Dawson, 1945a, p. 46.
 Doty, 1947b, p. 171.

Distribution.

- Pacific Coast: Prince William Sound, Alaska, to La Jolla, California.
 Local: British Columbia: Amphitrite Point; Ucluelet.
 Washington: Puget Sound (UW 64616).

New Records.

Washington: Salmon Bank, 14 August 1952 (RFS 160L).

Habitat.

On pebbles in the subtidal zone.

Cryptonemia ovalifolia Kylin, 1941: 11.*References.*

- Kylin, 1941, p. 11.
 Smith, 1944, p. 241.
 Sanborn and Doty, 1947, p. 36.
 Doty, 1947b, p. 172.

Distribution.

Pacific Coast: Northern Washington to Pacific Grove, California.

New Records.

Washington: Salmon Bank, 17 July 1952 (RFS 89L).

Habitat.

In the lower intertidal zone and in the subtidal zone to a depth of several fathoms.

Aeodes gardneri Kylin, 1925: 17.*References.*

- Harvey, 1862, p. 174 (as *Schizymenia coccinea?*).
 Setchell, 1901, p. 126 (as *A. nitidissima*).

References—Concluded

- Setchell and Gardner, 1903, p. 349 (as *A. nitidissima*).
 Collins, 1913, p. 127 (as *A. nitidissima*).
 Kylin, 1925, p. 17.
 Smith, 1944, p. 242.
 Sanborn and Doty, 1947, p. 36.
 Doty, 1947b, p. 172.

Distribution.

- Pacific Coast: Southern British Columbia to San Pedro, California.
 Local: British Columbia: Amphitrite Point; Ucluelet.
 Washington: Whidbey I. (UW 63686; UC 92440, 276640, 92453); Puget Sound.

New Records.

- British Columbia: Sidney, 1 October 1917 (CAN 253).
 Mayne I., June 1914 (CAN 264). Comox, July 1913 (CAN 274).
 Washington: Smith I., 10 July 1952 (RFS 52L). Hein Bank, 17 July 1952 (RFS 93L, 94L, 96L). Mukkaw B., 21 August 1949 (REN 173). Edmonds, 6 August 1949 (REN 401). Golden Gardens, 13 August 1950 (REN 626). West Beach, 3 September 1949 (REN 635).

Habitat.

On rocks in the subtidal zone at a depth of several fathoms.

Halymenia californica* Smith and Hollenberg, 1943: 216.References.*

- Smith and Hollenberg, 1943, p. 216.
 Smith, 1944, p. 243.
 Dawson, 1953a, p. vii; 1954, p. 270.

Distribution.

Pacific Coast: Northern Washington to Mexico.

New Records.

- Washington: Salmon Bank, 17 July 1952 (RFS 84L). West Beach, 3 September 1949 (REN 129).

Habitat.

On rocks in the subtidal zone at a depth of several fathoms.

Prionitis lanceolata* Harvey, 1853: 197.References.*

- Harvey, 1853, p. 197.
 Bailey and Harvey, 1862, p. 162.
 Setchell and Gardner, 1903, p. 352.

References—Concluded

- Collins, 1913, p. 127.
 DeToni, 1936, p. 7 (as *Zanardinula lanceolata*).
 Smith, 1944, p. 246.
 Sanborn and Doty, 1947, p. 36.
 Doty, 1947b, p. 172 (as *Zanardinula lanceolata*).
 Papenfuss, 1944b, p. 342 (as *Zanardinula lanceolata*); 1950a, p. 180.
 Dawson, 1954a, p. viii (as *Zanardinula lanceolata*); 1954b, p. 283 (as *Z. lanceolata*).
 Silva, 1955, p. 13.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Vancouver I., Victoria (CAN 1099);
 Amphitrite Point (UC 277795).
 Washington: Puget Sound; North B. (UC 763507).

New Records.

- British Columbia: Sandstone Creek, 10 July 1925 (V 1415).
 Ucluelet, 29 July 1909 (CAN 1572).
 Washington: Waadah I., 7 August 1952 (RFS 148L).

Habitat.

- On rocks in the lower intertidal and upper subtidal zones.

Prionitis lyallii Harvey, 1862, p. 173.*References.*

- Harvey, 1862, p. 173 (also as *P. l.* var. *lanceolata*, *P. l.* var. *ornata*, *P. l.* var. *normalis*, *P. l.* var. *gladiata*, *P. l.* var. *densissima*, *P. l.* var. *intermedia*, *P. l.* var. *dilatata* and *P. l.* var. *depauperata*).
 Setchell and Gardner, 1903, p. 351 (as *P. lyallii* f. *lanceolata*, *P. l.* f. *ornata*, *P. l.* f. *normalis*, *P. l.* f. *gladiata*, *P. l.* f. *densissima*, *P. l.* f. *intermedia*, *P. l.* f. *dilatata*), p. 352 (as *P. l.* f. *depauperata*), p. 350.
 Collins, 1913, p. 127 (also as *P. l.* f. *normalis*), p. 128 (as *P. l.* f. *lanceolata*, *P. l.* f. *ornata*, *P. l.* f. *gladiata*, *P. l.* f. *densissima*, *P. l.* f. *intermedia*, *P. l.* f. *dilatata*, *P. l.* f. *depauperata*).
 Kylin, 1925, p. 19 (as *P. lyallii* f. *ornata*, *P. l.* f. *normalis*, *P. l.* f. *densissima*).
 Connell, 1928, p. 100 (in part as *P. lyallii* f. *densissima*).
 DeToni, 1936, p. 7 (as *Zanardinula lyallii*).
 Smith, 1944, p. 247.
 Dawson, 1946, p. 75 (as *Zanardinula lyallii*); 1954b, p. 277 (as *Z. lyallii*).
 Sanborn and Doty, 1947, p. 36.

References—Concluded

- Doty, 1947b, p. 172 (as *Zanardinula lyallii*).
 Rigg and Miller, 1949, p. 331.
 Papenfuss, 1944b, p. 342 (as *Zanardinula lyallii*); 1950a, p. 180.
 Silva, 1955, p. 13.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Sooke (UC 464033); Horswell Channel; Departure B. (CAN 308, 764-5, 897, 910, 1045); Ucluelet (CAN 352; UC 464014); Esquimalt (UC 68314); Victoria (V 1417, 1421, 1422; CAN 1634, 382, 896, 898, 902, 1036, 1043-4); Port Renfrew (UC 95808).

Washington: Penn Cove (UC 636757); Whidbey I. (UW 67527; UC 651297); Seattle; Fairhaven (UW 66690; UC 95810); San Juan I. (UW 64186, 64181, 64183; UC 132872); Neah B., Port Orchard (UC 278255).

New Records.

British Columbia: Point Holmes, 17 June 1893 (CAN 1035). Comox, 1893 (CAN 317, 911). Gordon Head, May 1887 (CAN 292). Sandstone Creek, 10 July 1925 (V 1418, 1419). Cordova B., 14 February 1925 (V 1420). Ten Mile Point, 1 January 1925 (V 1423). Sidney, 5 October 1917 (V 1424, 1425-1429; CAN 263); 20 September 1917 (CAN 279); 1913 (CAN 808). Mayne I., 1914 (CAN 269).

Washington: Minnesota Reef, 7 July 1949 (RFS 496). West Beach, 24 August 1949 (REN 220). Mukkaw B., 21 August 1949 (REN 197). Kanaka B., 27 July 1907 (UW 64780, 64778).

Habitat.

On rocks in tide pools in the intertidal zone.

Family 8. KALLYMENIACEAE

Kallymenia oblongifructa Setchell, 1912a: 234.*References.*

- Setchell, 1901, p. 123 (as *Iridaea oblongifructa*); 1912a, p. 234 (as *Callymenia oblongifructa*).
 Setchell and Gardner, 1903, p. 300 (as *Iridaea oblongifructa*).
 Kylin, 1925, p. 35 (as *Callymenia oblongifructa*).

Distribution.

Pacific Coast: Sitka, Alaska, to Northern Washington.

Local: Washington: Whidbey I. (UBC 1017; UW 64743, 137898; UC 396588, 276231); San Juan I. (UBC 1016; UW 138785); Puget Sound; Canoe I. (UC 266419); Cattle Point (UC 276247).

Habitat.

Epiphytic on the stipes of *Pleurophycus* and *Pterygophora* in the subtidal zone.

Kallymenia ornata (Postels and Ruprecht) J. Agardh, 1851: 290.

References.

Agardh, 1851, p. 290.

Setchell and Gardner, 1903, p. 307 (as *Callymenia ornata*).

Collins, 1913, p. 116 (as *Callymenia ornata*).

Distribution.

Pacific Coast: Yakutat B., Alaska, to Southern British Columbia.

Local: British Columbia: Departure B.

Habitat.

Probably on rocks in the subtidal zone.

Kallymenia reniformis (Turner) J. Agardh, 1842: 99.

Agardh, 1842, p. 99.

Harvey, 1862, p. 172.

Setchell and Gardner, 1903, p. 307 (as *Callymenia reniformis*).

Collins, 1913, p. 116 (as *Callymenia reniformis*).

Norris, 1957, p. 257.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Departure B.; Esquimalt.

Habitat.

On rocks in the subtidal zone at a depth of 10 fathoms.

Pugetia fragilissima Kylin, 1925: 31.

References.

Kylin, 1925, p. 31.

Sanborn and Doty, 1947, p. 36.

Doty, 1947b, p. 176.

Norris, 1957, p. 266.

Distribution.

Pacific Coast: Southern British Columbia to Monterey, California.

Local: British Columbia: Vancouver I. (UC 277460).

Washington: Canoe I. (UW 63559; UC 274154); Peavine Pass; Friday Harbor; Lopez Pass; Ballard Beach.

New Records.

British Columbia: S. James I., 4 August 1949 (RFS 55).
 Washington: N. False B., 5 August 1952 (RFS 126L);
 13 August 1954 (RFS 189L). Mackaye Harbor, 30 June
 1949 (RFS 56). Lopez Pass, 25 June 1952 (RFS 535;
 REN 646); 19 July 1948 (REN 241). Indian Cove, 24
 June 1952 (REN 645).

Habitat.

On rocks in the lower intertidal and subtidal zones to a
 depth of 5 to 10 fathoms.

Callophyllis crenulata Setchell, 1923b: 400.

References.

Setchell, 1923b, p. 400.
 Kylin, 1925, p. 34.
 Smith, 1944, p. 250.
 Doty, 1947b, p. 175.
 Rigg and Miller, 1949, p. 331.
 Dawson, 1954b, p. 290.
 Norris, 1957, p. 285.

Distribution.

Pacific Coast: Northern British Columbia to Oregon.
 Local: Washington: Whidbey I. (UC 651414); Neah B.

New Records.

British Columbia: Sandstone Creek, 10 July 1925 (V 1313).
 Mazzaredo Is., 26 July 1953 (RFS 927).
 Washington: Salmon Bank, 17 July 1952 (REN 700). Lopez
 Pass, 25 June 1952 (RFS 532); 31 July 1952 (REN 649).
 Golden Gardens, 7 August 1949 (REN 90). West Beach,
 3 September 1949 (REN 110). Mukkaw B., 21 August
 1949 (REN 174).

Habitat.

On rocks in the subtidal zone.

Callophyllis edentata Kylin, 1925: 34.

References.

Setchell and Gardner, 1903, p. 306 (as *C. furcata* f. *dissecta*).
 Collins, 1913, p. 116 (as *C. furcata* and *C. f. f. dissecta*).
 Kylin, 1925, p. 34.
 Doty, 1947b, p. 175.
 Rigg and Miller, 1949, p. 331.
 Dawson, 1954b, p. 291.

Distribution.

Pacific Coast: Hope I., British Columbia, to Oregon.

Local: British Columbia: Port Renfrew; Esquimalt; Victoria (CAN 77; 139; V 1306).

Washington: Turn I. (UC 279585); Neah B.; Whidbey I. (UC 92748, 92734); Friday Harbor.

New Records.

British Columbia: Comox, 1915 (CAN 1092). S. James I., 4 August 1949 (RFS 452, 453). Sandstone Creek, 10 July 1925 (V 1308). Cordova B., May 1925 (V 1309). Cape Lazo, 18 June 1893 (CAN 319). Hope I., 11 August 1953 (RFS 164H).

Washington: Salmon Bank, 3 July 1952 (RFS 41L); 7 July 1952 (RFS 38L); 10 July 1952 (REN 661); 18 July 1948 (REN 257). Smith I., 28 July 1949 (RFS 311); 26 July 1948 (REN 256). Goose I., 27 May 1949 (RFS 351, 395). Golden Gardens, 7 August 1949 (REN 86). Lincoln Park, 8 August 1949 (REN 101). West Beach, 3 September 1949 (REN 122). Lopez Pass, 31 July 1952 (REN 650). Dungeness, 28 November 1912 (UW 64630).

Habitat.

On rocks and shells in the subtidal zone and to a depth of 5 to 10 fathoms.

***Callophyllis firma* (Kylin) Norris, 1957: 287.**

References.

Setchell, 1901, p. 124 (as *Callymenia reniformis*).

Kylin, 1941, p. 15 (as *Pugetia firma*).

Smith, 1944, p. 254 (as *Pugetia firma*).

Doty, 1947b, p. 176 (as *Pugetia fragilissima*).

Norris, 1957, p. 287.

Distribution.

Pacific Coast: Northern British Columbia to Monterey, California.

New Records.

British Columbia: Whiffin Spit, 23 August 1950 (REN 436).

Washington: West Beach, 24 August 1950 (REN 11). False B., 5 August 1952 (REN 698); 26 August 1950 (REN 427); 4 August 1948 (REN 240). Waadah I., 7 August 1952 (REN 669). Mukkaw B., 20 August 1949 (REN 623); 21 August 1949 (REN 30).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Callophyllis flabellulata Harvey, 1862: 171.*References.*

- Harvey, 1862, p. 171.
 Setchell and Gardner, 1903, p. 306.
 Kylin, 1925, p. 34.
 Sanborn and Doty, 1947, p. 36.
 Doty, 1947b, p. 174.
 Rigg and Miller, 1949, p. 331.
 Dawson, 1954b, p. 291.

Distribution.

- Pacific Coast: Northern British Columbia to Oregon.
 Local: British Columbia: Cordova B. (UC 420891); Esquimalt; Victoria (CAN 1, 322); Port Renfrew (UC 273862).
 Washington: Friday Harbor (UC 92722); Canoe I. (UC 367790); Shaw I. (UC 276862); Neah B.; Whidbey I. (UC 92721); Kanaka B. (UC 277612).

New Records.

- British Columbia: Ucluelet, 12 August 1909 (CAN 75, 140). Cordova B., May 1925 (V 1311, 1314). Hopetown Passage, 14 July 1946 (RFS 1004L). S. James I., 4 August 1949 (RFS 455). Mazzaredo Is., 26 July 1953 (RFS 599H).
 Washington: West Sound, 28 July 1903 (UW 64709). False B., 21 July 1949 (RFS 625). Lopez Pass, 7 July 1949 (RFS 626, 627). Salmon Bank, 7 July 1952 (RFS 48L); 17 July 1952 (REN 656); 10 July 1952 (REN 666). Mummy Rocks, 30 June 1949 (RFS 624, 628-630). Mackaye Harbor, 30 June 1949 (RFS 454). Parker Reef, 19 July 1949 (RFS 622). Crescent B., 25 June 1949 (RFS 623). Canoe I., 10 August 1950 (REN 699). Golden Gardens, 5 August 1949 (REN 344); 7 August 1949 (REN 87); 9 August 1949 (REN 609). West Beach, 3 September 1949 (REN 121). Smith I., 26 July 1948 (REN 258). Mukkaw B., 21 August 1949 (REN 328).

Habitat.

On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Callophyllis heanophylla Setchell, 1923b: 401.*References.*

- Setchell, 1923b, p. 401.
 Kylin, 1925, p. 34.
 Sanborn and Doty, 1947, p. 36.
 Doty, 1947b, p. 175.
 Rigg and Miller, 1949, p. 331.
 Dawson, 1954b, p. 293.
 Norris, 1957, p. 281.

Distribution.

Pacific Coast: Southern British Columbia to Oregon.

Local: British Columbia: Departure B. (UC 392840).

Washington: Shaw I.; Canoe I. (UC 651624); Neah B.;
Friday Harbor (UC 276861); Peavine Pass (UC
638540).

New Records.

Washington: Smith I., 26 July 1948 (REN 254). Salmon
Bank, 7 July 1952 (RFS 39L); 17 July 1952 (REN 653);
10 July 1952 (REN 665). Canoe I., 17 August 1954
(RFS 193L, 194L). Golden Gardens, 7 August 1949
(REN 89); 5 August 1949 (REN 345). West Beach,
3 September 1949 (REN 130).

Habitat.

On rocks and shells in the subtidal zone at a depth of 5 to 10
fathoms.

Callophyllis marginifructa Setchell and Swezy, *in* Setchell, 1923b: 398.

References.

Setchell, 1923b, p. 398.

Kylin, 1941, p. 16.

Smith, 1944, p. 250.

Sanborn and Doty, 1947, p. 37.

Doty, 1947b, p. 174 (in part as *C. flabellulata*).

Dawson, 1954b, p. 294.

Distribution.

Pacific Coast: Northern Washington to San Diego, California.

Local: Washington: Whidbey I. (UC 651636).

New Records.

Washington: Mukkaw B., 21 August 1949 (REN 363).

Habitat.

On rocks in the subtidal zone.

Callophyllis megalocarpa Setchell and Swezy, *in* Setchell, 1923b: 401.

References.

Setchell, 1923b, p. 401.

Smith, 1944, p. 251.

Dawson, 1945d, p. 65; 1954b, p. 295.

Sanborn and Doty, 1947, p. 36.

Doty, 1947b, p. 174.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Whidbey I.

Habitat.

On rocks in the subtidal zone.

Callophyllis thompsonii Setchell, 1923b: 399.*References.*

Setchell, 1923b, p. 399.

Kylin, 1925, p. 34.

Dawson, 1954b, p. 301.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Canoe I. (UC 367784).

New Records.

Washington: Mukkaw B., 21 August 1949 (REN 204).

Lopez Pass, 16 August 1948 (REN 255).

Habitat.

On rocks at a depth of 5 to 10 fathoms.

Callocolax fungiformis Kylin, 1925: 35.*References.*

Kylin, 1925, p. 35.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Turn I.; Friday Harbor.

New Records.

Washington: Hein Bank, 17 July 1952 (RFS 97L).

Habitat.

Epiphytic on *Callophyllis edentata*.

Callocolax globulosis Dawson, 1945c: 94.*References.*

Smith, 1944, p. 253 (as *C. neglectus*).

Dawson, 1945c, p. 94.

Distribution.

Pacific Coast: Northern Washington to Point Loma, Southern California.

New Records.

Washington: Salmon Bank, 17 July 1952 (RFS 90L).

Habitat.

Epiphytic on *Callophyllis flabellulata*.

Erythrophyllum delesserioides J. Agardh, 1872: 10.*References.*

- Agardh, 1872, p. 10.
 Setchell and Gardner, 1903, p. 303.
 Twiss, 1911, p. 159.
 Collins, 1913, p. 116.
 Kylin, 1941, p. 17.
 Smith, 1944, p. 292.
 Sanborn and Doty, 1947, p. 37.
 Doty, 1947b, p. 184.
 Norris, 1954, p. 3; 1957, p. 298.

Distribution.

- Pacific Coast: Hope I., British Columbia, to San Luis Obispo County, California.
 Local: British Columbia: Port Renfrew (UW 137748; UC 763803); Victoria; Departure B. (UC 392844).

New Records.

- British Columbia: Sandstone Creek, 10 July 1925 (V 1346, 1347, 1349). Ucluelet, 1 August 1909 (V 1348). Hope I., 11 August 1953 (RFS 678).
 Washington: Waadah I., 7 August 1952 (RFS 134L).

Habitat.

- On rocks in the lower intertidal and upper subtidal zones.

Family 9. CHOREOCOLACEAE

Choreocolax polysiphoniae Reinsch, 1875: 61.*References.*

- Reinsch, 1875, p. 61.
 Sturch, 1926, p. 585.
 Newton, 1931, p. 424.
 Taylor, 1937, p. 278.
 Smith, 1944, p. 255.
 Dawson, 1945d, p. 61; 1954b, p. 304.
 Hollenberg, 1948, p. 159.

Distribution.

- Pacific Coast: Sitka, Alaska, to Mexico.
 Local: Washington: Neah B. (UC 790559).

Habitat.

- Epiphytic on species of *Polysiphonia*.

Order 5. GIGARTINALES

Family 1. CRUORACEAE

Petrocelis franciscana Setchell and Gardner, *in* Gardner, 1917: 391.

References.

- Gardner, 1917, p. 391.
 Kylin, 1925, p. 24.
 Smith, 1944, p. 217.
 Doty, 1947b, p. 167.
 Hollenberg, 1948, p. 157.
 Dawson, 1953a, p. 142.

Distribution.

- Pacific Coast: Northern Washington to Mexico.
 Local: Washington: Brown I.; Puget Sound.

New Records.

- Washington: American Camp Beach, 8 July 1952 (RFS 80L).

Habitat.

- On rocks in the upper intertidal zone.

Petrocelis middendorffii (Ruprecht) Kjellman, 1883: 140.

References.

- Kjellman, 1883, p. 140.
 Setchell and Gardner, 1903, p. 357.
 Gardner, 1917, p. 391.
 Kylin, 1925, p. 24.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: Washington: Whidbey I. (UC 94964).

Habitat.

- On rocks in the upper intertidal zone.

Family 2. NEMASTOMACEAE

Schizymenia pacifica Kylin, 1932: 10.

References.

- Harvey, 1862, p. 174 (as *S. dubyi?*).
 Setchell and Gardner, 1903, p. 354 (as *Sarcophyllis californica*), p. 356 (as *S. dubyi*).
 Collins, 1913, p. 128 (as *Sarcophyllis californica*).
 Kylin, 1925, p. 21 (as *Turnerella pacifica*); 1930, p. 38; 1932, p. 10.

References—Concluded

- Smith, 1944, p. 258.
 Dawson, 1945d, p. 66; 1951, p. 53.
 Sanborn and Doty, 1947, p. 37.
 Doty, 1947b, p. 176.
 Rigg and Miller, 1949, p. 331 (as *Turnerella pacifica*).

Distribution.

- Pacific Coast: Unga I., Alaska, to Mexico.
 Local: British Columbia: Port Renfrew; Esquimalt; Table I. (UC 634012).
 Washington: Whidbey I. (UC 96300); Friday Harbor (UW 64182, 64793; UC 96339); Turn Rock; Brown I. (UC 276714); Canoe I. (UW 64794); Neah B.; San Juan I.; Kanaka B. (UC 132868); Tacoma (UC 951394); Roche Harbor (UC 651384).

New Records.

- Washington: Lopez Pass, 31 July 1952 (RFS 122L); 25 June 1952 (RFS 538). S. False B., 6 July 1948 (REN 249). Salmon Bank, 14 August 1952 (RFS 157L). Edmonds, 6 August 1949 (REN 402). Rocky B., 7 July 1949 (RFS 197, 509); 12 July 1949 (RFS 209-211, 397). Brown I., 9 June 1949 (RFS 380). Mukkaw B., 21 August 1949 (REN 191, 643). West Beach, 12 August 1950 (REN 415, 631); 3 September 1949 (REN 637).

Habitat.

- On rocks in the lower intertidal and upper subtidal zones.

Family 3. SOLIERIACEAE

Turnerella mertensiana (Postels and Ruprecht) Schmitz, 1889: 441.*References.*

- Schmitz, 1889, p. 441.
 Bailey and Harvey, 1862, p. 163 (as *Iridaea mertensiana*).
 Harvey, 1862, p. 174 (as *Iridaea mertensiana*).
 Setchell and Gardner, 1903, p. 309.
 Collins, 1913, p. 117.

Distribution.

- Pacific Coast: Shumagin Is., Alaska, to Northern Washington.
 Local: British Columbia: Victoria.
 Washington: Puget Sound.

Habitat.

- Probably in the subtidal zone.

Agardhiella coulteri (Harvey) Setchell, in Collins, Holden and Setchell, 1897: 333.

References.

- Harvey and Bailey, 1851, p. 371 (as *Hyprica coulteri*).
 Harvey, 1853, p. 154 (as *Rhabdonia coulteri*); 1862, p. 170 (as *Rhabdonia coulteri*), p. 171 (as *Cystoclonium gracilaroides*).
 Bailey and Harvey, 1862, p. 162 (as *Rhabdonia coulteri*).
 Collins, Holden and Setchell, 1897, p. 333.
 Setchell and Gardner, 1903, p. 309 (as *A. tenera*).
 Collins, 1913, p. 117 (as *A. tenera*).
 Kylin, 1925, p. 36; 1932, p. 17.
 Connell, 1928, p. 100 (as *A. tenera*).
 Smith, 1944, p. 260.
 Dawson, 1945d, pp. 61 and 66; 1952b, p. 431.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Queen Charlotte Strait, British Columbia, to Mexico.
 Local: British Columbia: Esquimalt (UC 68290); Departure B. (CAN 186, 1618, 875); Victoria (V 1292; CAN 1226); Horswell Channel; Amphitrite Point (UC 277413).
 Washington: Canoe I.; Whidbey I. (UC 92476); Tracyton (UC 278268); Neah B.; Puget Sound; West Sound (UC 92481).

New Records.

- British Columbia: Sidney, 5 March 1918 (CAN 6); 1917 (CAN 29); October 1916 (CAN 51); April 1913 (CAN 977). Point Holmes, 17 June 1893 (V 1287; CAN 86). Kvarno I., 29 July 1909 (V 1290; CAN 88). Mayne I., June 1914 (CAN 54). Klucksiwi R., 14 July 1946 (RFS 106, 107, 109). Comox, July 1915 (V 1288, 1293; CAN 44, 48). Sandstone Creek, 10 July 1925 (V 1289, 1291). Ucluelet, 18 June 1909 (CAN 1227). Amphitrite Point, 20 May 1909 (CAN 1228).
 Washington: Salmon Bank, 3 July 1952 (RFS 55L, 56L). Brown I., 14 June 1949 (RFS 108). Dungeness, 28 November 1913 (UW 64637). Goose I., 21 July 1949 (RFS 140, 445). Ballard Beach, 4 October 1904 (UW 64786). False B., 11 June 1949 (RFS 315). Deer Harbor, July 1907 (UW 64512). Mackaye Harbor, 30 June 1949 (RFS 446). Friday Harbor, July 1907 (UW 64511).

Habitat.

On rocks in the subtidal zone to a depth of 10 fathoms.

Opuntiella californica (Farlow) Kylin, 1925: 23.*References.*

- Setchell and Gardner, 1903, p. 308 (as *Callymenia phyllophora*).
 Leavitt, 1904, p. 291.
 Collins, 1913, p. 116 (as *Callymenia phyllophora* and *C. p. f. orbicularis*).
 Kylin, 1925, p. 23.
 Smith, 1944, p. 262.
 Sanborn and Doty, 1947, p. 37.
 Doty, 1947b, p. 177.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Unga I., Alaska, to San Diego, California.
 Local: British Columbia: Port Renfrew; Calvert I. (UC 634000).
 Washington: Whidbey I. (UW 64698, 63581; UC 92820, 402270); Brown I. (UW 64382-4, 63700); Shaw I.; Canoe I.; Peavine Pass; Neah B., Friday Harbor (UC 92831); Deer Harbor (UC 92832).

New Records.

- British Columbia: Cordova B., January 1925 (V 1317, 1325). Klucksiwi R., 14 July 1946 (RFS 383). Stanley Park, 17 April 1953 (RFS 514).
 Washington: Hein Bank, 17 July 1952 (RFS 95L). Parker Reef, 19 July 1949 (RFS 59). Rocky B., 7 July 1949 (RFS 75, 200, 485, 486). Mummy Rocks, 30 June 1949 (RFS 201). Crescent B., 25 June 1949 (RFS 484). Mikkaw B., 21 August 1949 (REN 33). Minnesota Reef, 1 July 1940 (UW 63737). Mosquito Pass, 1928 (UW 70546).

Habitat.

- On rocks in the lower intertidal and subtidal zones to a depth of about 10 fathoms.

Sarcodiotheca furcata (Setchell and Gardner) Kylin, 1932: 16.*References.*

- Setchell and Gardner, 1903, p. 310 (as *Anatheca furcata*).
 Collins, 1913, p. 117 (as *Anatheca furcata*).
 Kylin, 1925, p. 36 (as *Anatheca furcata*); 1932, p. 16.
 Rigg and Miller, 1949, p. 331 (as *Anatheca furcata*).

Distribution.

- Pacific Coast: Southern British Columbia to Northern Washington.
 Local: British Columbia: Departure B. (V 1315, 1316; CAN 93, 153).

Distributions—Concluded

Washington: Friday Harbor (UC 276706); Whidbey I. (UW 64438, 64516; UC 92512); Canoe I. (UC 132865); Peavine Pass; Neah B.

New Records.

British Columbia: Sidney, 16 January 1918 (CAN 380). S. James I., 4 August 1949 (RFS 138, 139, 508).

Washington: Salmon Bank, 10 July 1952 (RFS 65L). Lopez Pass, 7 July 1949 (RFS 67). West Sound, 28 July 1903 (UW 64517). Parker Reef, 19 July 1949 (RFS 68-70, 72). Smith I., 28 July 1949 (RFS 71, 507). West Beach, 3 September 1949 (REN 135); 12 August 1950 (REN 422).

Habitat.

On rocks in the subtidal zone at a depth of 5 to 10 fathoms.

Family 4. RHODOPHYLLIDACEAE

Euthora fruticulosa (Ruprecht) J. Agardh, 1852: 705.

References.

- Agardh, 1852, p. 705.
 Setchell and Gardner, 1903, p. 311.
 Collins, 1913, p. 117.
 Kylin, 1925, p. 39.

Distribution.

Pacific Coast: Bering Sea to Northern Washington.

Local: British Columbia: Victoria (V 1343; CAN 91, 172).

Washington: Canoe I.; Peavine Pass; Whidbey I. (UC 93440); West Sound (UC 93439); Roche Harbor (UC 132869).

New Records.

Washington: Turn I., 3 July 1952 (RFS 32L). Salmon Bank, 3 July 1952 (RFS 33L); 2 August 1948 (REN 251); 17 July 1952 (REN 654); 10 July 1952 (REN 662); 9 July 1952 (REN 697). Mackaye Harbor, 30 June 1949 (RFS 51, 255). Lopez Pass, 7 July 1949 (RFS 111, 253, 465). Iceberg Point, 30 June 1949 (RFS 112). False B., 21 July 1949 (RFS 237); 10 June 1949 (RFS 254). Smith I., 10 July 1952 (REN 696). Cowlitz B., 19 July 1949 (RFS 256). Parker Reef, 19 July 1949 (RFS 257). West Beach, 20 June 1951 (REN 600).

Habitat.

On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Family 5. PLOCAMIACEAE

Plocamium oregonum Doty, 1947b: 177.*References.*

Doty, 1947b, p. 177.

Silva, 1957, p. 49.

Distribution.

Pacific Coast: Southern British Columbia to Central California.

Local: British Columbia: Point No Point.

Habitat.

On rocks in the lower intertidal zone.

Plocamium pacificum Kylin, 1925: 42.*References.*

Harvey, 1853, p. 153 (as *P. coccineum*); 1862, p. 171 (as *P. coccineum*).

Bailey and Harvey, 1862, p. 161 (as *P. coccineum*).

Setchell and Gardner, 1903, p. 317 (as *P. coccineum*).

Kylin, 1925, p. 42.

Connell, 1928, p. 100.

Smith, 1944, p. 264.

Taylor, 1945, p. 228.

Dawson, 1945d, pp. 61 and 66; 1951, p. 53.

Sanborn and Doty, 1947, p. 39.

Doty, 1947b, p. 178.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Port Renfrew; Sooke (CAN 621);
 Juan de Fuca Strait; Victoria (CAN 2, 5, 21, 110,
 850, 851, 913, 958, 1082; V 1442; UC 277806, 273871).
 Departure B.; Comox (CAN 43, 892); Esquimalt.
 Washington: S. False B.; Whidbey I. (UC 95117);
 Neah B.; Friday Harbor (UC 132873).

New Records.

British Columbia: Cordova B., May 1925 (V 1312).
 Whiffin Spit, 30 December 1947 (RFS 298, 299, 1008L).
 Klucksiwi R., 14 July 1946 (RFS 1010L). Sandstone
 Creek, 10 August 1925 (V 1441).

Washington: American Camp Beach, 5 July 1952 (RFS 15L),
 Ballard Beach, June 1912 (UW 64633). Lopez Pass,
 31 July 1952 (RFS 114L); 7 July 1949 (RFS 270, 488).
 Salmon Bank, 10 July 1952 (REN 668). Cowlitz B.,
 19 July 1949 (RFS 632). N. False B., 10 June 1949
 (RFS 269). West Sound, 29 July 1904 (UW 64548).
 S. False B., 12 June 1949 (RFS 271). West Beach,
 24 August 1949 (REN 229).

Habitat.

On rocks in the lower intertidal and subtidal zones to a depth of 6 to 8 fathoms.

Plocamium tenue Kylin, 1925: 43.*References.*

Kylin, 1925, p. 43.

Distribution.

Pacific Coast: Sitka, Alaska, to Northern Washington.

Local: Washington: Brown I. (UBC 1165; UW 64479, 137696; UC 276695); S. False B.; Friday Harbor (UW 63545; UC 392718); Orcas I. (UC 276456); Neah B. (UC 276453).

New Records.

British Columbia: Departure B., 26 June 1908 (CAN 92).

Washington: Iceberg Point, 30 June 1949 (RFS 226). Brown I., 9 June 1949 (RFS 263). Rocky B., 7 July 1949 (RFS 489).

Habitat.

On rocks in the intertidal zone.

Plocamium violaceum Farlow, 1877: 240.*References.*

Farlow, 1877, p. 240.

Setchell and Gardner, 1903, p. 317.

Collins, 1913, p. 118.

Smith, 1944, p. 264.

Sanborn and Doty, 1947, p. 40.

Doty, 1947b, p. 178.

Dawson, 1951, p. 53; 1953a, p. 144.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Ucluelet (CAN 387); Port Renfrew (UC 95157).

New Records.

British Columbia: Sandstone Creek, 10 August 1925 (V 1443).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Plocamiocolax pulvinata Setchell, 1923a: 396.*References.*

Setchell, 1923a, p. 396.

Smith, 1944, p. 265.

Dawson, 1945b, p. 24; 1953a, p. 144.

Doty, 1947b, p. 178.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: San Juan I.; Kanaka B. (UC 276684).

New Records.

Washington: Iceberg Point, 30 July 1952 (RFS 107L).

Lopez Pass, 20 August 1954 (RFS 197L); 19 July 1948 (REN 243); 16 August 1948 (REN 271).

Habitat.

Epiphytic on *Plocamium pacificum*.

Family 6. GRACILARIACEAE

Gracilaria verrucosa (Hudson) Papenfuss, 1950b: 195.*References.*

Harvey, 1853, p. 108 (as *G. confervoides*); 1862, p. 170 (as *G. confervoides*).

Setchell and Gardner, 1903, p. 312 (as *G. confervoides*).

Collins, 1913, p. 117 (as *G. confervoides*).

Kylin, 1925, p. 39 (as *G. confervoides*).

Connell, 1928, p. 100 (as *G. confervoides*).

Dawson, 1944a, p. 295; 1953c, p. 314.

Papenfuss, 1950b, p. 195.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Esquimalt; Departure B. (CAN 87, 206, 884).

Washington: Tracyton (UC 763515); Whidbey I.; False B.; Canoe I.; Puget Sound; East Sound (UC 777331).

New Records.

British Columbia: Comox, July 1915 (V 1455; CAN 46).

Habitat.

On rocks and shells in the lower intertidal and upper subtidal zones.

Gracilariopsis sjoestedtii (Kylin) Dawson, 1949b: 40.*References.*

Kylin, 1930, p. 55 (as *Gracilaria sjoestedtii*).

Smith, 1944, p. 267 (as *Gracilaria sjoestedtii*).

Dawson, 1944a, p. 296; 1945d, pp. 61 and 67; 1949b, p. 40.

Sanborn and Doty, 1947, p. 39 (as *Gracilaria sjoestedtii*).

Doty, 1947b, p. 178 (as *Gracilaria sjoestedtii*).

Distribution.

Pacific Coast: Vancouver I., British Columbia, to Mexico.

Local: British Columbia: Vancouver I.; Nanaimo (UC 389915).

Washington: East Sound (UC 93919); Tracyton (UC 278267).

New Records.

British Columbia: Sidney Spit, 11 September 1946 (RFS 418).

Washington: Salmon Bank, 3 July 1952 (RFS 34L, 27L, 20L). Garrison B., 11 June 1949 (RFS 419).

Habitat.

On rocks and shells in the lower intertidal and upper subtidal zones.

Family 7. PHYLLOPHORACEAE

Ahnfeltia concinna J. Agardh, 1847: 12.

References.

Agardh, 1847, p. 12.

Harvey, 1853, p. 168 (as *A. gigartinoides*).

Setchell and Gardner, 1903, p. 305.

Collins, 1913, p. 116.

Kylin, 1925, p. 30.

Smith, 1944, p. 272 (as *A. gigartinoides*).

Taylor, 1945, p. 238 (as *A. gigartinoides*).

Doty, 1947b, p. 179.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Port Renfrew.

Washington: Whidbey I.; Kanaka B. (UC 276687).

New Records.

British Columbia: Muir Creek, 12 April 1925 (V 1295).

Beacon Hill, 17 January 1897 (V 1294). Whiffin Spit, 30 December 1947 (RFS 306, 1018L).

Washington: American Camp Beach, 5 July 1952 (RFS 57L).

Crescent B., 25 June 1949 (RFS 313, 314). West Beach, 24 August 1949 (REN 227). Mukkaw B., 21 August 1949 (REN 397).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Ahnfeltia plicata (Hudson) Fries, 1835: 310.*References.*

- Fries, 1835, p. 310.
 Harvey, 1853, p. 168; 1862, p. 171.
 Setchell and Gardner, 1903, p. 305.
 Collins, 1913, p. 116.
 Kylin, 1925, p. 30.
 Smith, 1944, p. 271.
 Sanborn and Doty, 1947, p. 39.
 Doty, 1947b, p. 179.
 Dawson, 1953a, p. 146.

Distribution.

- Pacific Coast: Bering Sea to Mexico.
 Local: British Columbia: Port Renfrew; Esquimalt (UC 68313); Victoria (CAN 73, 182, 1108); Departure B. (CAN 181, 961).
 Washington: San Juan I.; Whidbey I. (UC 92498); Kanaka B. (UC 276707).

New Records.

- British Columbia: Sandstone Creek, 10 July 1925 (V 1296).
 Jackson B., 5 September 1946 (RFS 1003L). Second Beach, 18 April 1949 (RFS 1020L).
 Washington: American Camp Beach, 5 July 1952 (RFS 58L).
 Smith I., 28 July 1952 (RFS 413, 447).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Gymnogongrus platyphyllus Gardner, 1927a: 247.*References.*

- Gardner, 1927a, p. 247.
 Smith, 1944, p. 274.
 Dawson, 1952b, p. 431; 1953a, p. 147.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

New Records.

- British Columbia: Ten Mile Point, 18 February 1926 (V 1505, 1506).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Gymnogongrus norvegicus (Gunner) J. Agardh, 1851: 320.*References.*

- Agardh, 1851, p. 320.
 Harvey, 1853, p. 166; 1862, p. 171 (as *Gymnogongrus linearis*).
 Collins, 1913, p. 114.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Ucluelet (V 1507); Victoria (UC 160753).

New Records.

British Columbia: Victoria, February 1926 (V 1508).

Washington: Lincoln Park, 8 August 1949 (REN 93).

Habitat.

On rocks in the lower intertidal zone.

Stenogramme californica Harvey, 1841: 408.

References.

Harvey, 1841, p. 408; 1853, p. 163 (as *S. interrupta*).

Kylin, 1925, p. 30.

Smith, 1944, p. 276.

Sanborn and Doty, 1947, p. 39.

Doty, 1947b, p. 180.

Distribution.

Pacific Coast: Southern British Columbia to San Diego, California.

Local: Washington: Canoe I. (UC 395448, 276646); Peavine Pass; San Juan I.

New Records.

British Columbia: Ucluelet, 1909 (CAN 344). S. James I., 4 August 1949 (RFS 297, 510).

Washington: Salmon Bank, 10 July 1952 (REN 660). Goose I., 3 July 1952 (RFS 72L, 61L, 67L). Parker Reef, 19 July 1949 (RFS 252). Smith I., 28 July 1949 (RFS 417, 511). Hein Bank, 9 July 1948 (REN 273). Lopez Pass, July 1914 (UW 64733).

Habitat.

On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Family 8. GIGARTINACEAE

Gigartina binghamiae J. Agardh, 1899: 33.

References.

Agardh, 1899, p. 33.

Setchell and Gardner, 1933, p. 277.

Sanborn and Doty, 1947, p. 38.

Doty, 1947b, p. 181.

Dawson, 1953a, p. 147.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Whidbey I.; Puget Sound.

Habitat.

On rocks in the subtidal zone to a depth of several fathoms.

Gigartina corymbifera (Kützinger) J. Agardh, 1876: 202.*References.*

Agardh, 1876, p. 202.

Setchell and Gardner, 1933, p. 275.

Smith, 1944, p. 281.

Sanborn and Doty, 1947, p. 38.

Distribution.

Pacific Coast: Northern Washington to San Diego, California.

Local: Washington: Puget Sound.

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Gigartina cristata (Setchell) Setchell and Gardner, 1933: 289.*References.*

Setchell and Gardner, 1903, p. 301 (in part as *G. mamillosa* f. *cristata* and *G. m.* f. *cristata* subf. *prolifera*); 1933, p. 289.

Kylin, 1941, p. 26.

Smith, 1944, p. 283.

Dawson, 1945d, p. 66.

Sanborn and Doty, 1947, p. 38.

Doty, 1947b, p. 180.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Whidbey I.; Tracyton (UC 763638);
Port Townsend (UC 93721).

New Records.

Washington: Mukkaw B., 21 August 1949 (REN 202).

Habitat.

On rocks in the lower intertidal zone.

Gigartina exasperata Harvey and Bailey, 1851: 371.*References.*

Harvey and Bailey, 1851, p. 371.

Harvey, 1853, p. 177; 1862, p. 172 (as *G. radula*).

Bailey and Harvey, 1862, p. 162.

References—Concluded

- Olson, 1899, p. 154.
 Humphrey, 1901, p. 601.
 Setchell and Gardner, 1903, p. 302 (as *G. radula* f. *typica*),
 p. 303 (as *G. radula* f. *exasperata*); 1933, p. 275.
 Collins, 1913, p. 115 (also as *G. e.* f. *microphylla*).
 Kylin, 1925, p. 29.
 Connell, 1928, p. 100.
 Doty, 1947b, p. 181.
 Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Southern British Columbia to Northern California.

Local: British Columbia: Juan de Fuca Strait; Port Renfrew; Victoria (CAN 1100); Departure B. (CAN 137, 1617, 337, 1058; UC 277467); Horswell Channel; Cape Lazo (V 1494).

Washington: Whidbey I. (UW 64728, 64726; UC 93827); Channel Rocks (UC 93791); Tracyton (UC 763555); Canoe I., Peavine Pass; Neah B.; Fort Nisqually; Mats-Mats B. (UC 93779); Port Townsend (UC 93835); Friday Harbor (UC 93834); East Sound (UC 294542).

New Records.

British Columbia: Gordon Head, May 1887 (CAN 165). Mayne I., 1914 (V 1493). Sidney Spit, 11 September 1946 (RFS 213). Sidney, 1917 (V 1497, 1498; CAN 28, 36, 133, 291, 1098). S. James I., 4 August 1949 (RFS 468). Comox, July 1915 (CAN 45, 341). Stanley Park, 17 April 1953 (RFS 513, 518, 519). Cordova B., 14 February 1925 (V 1496). Point Holmes, 24 June 1893 (CAN 163).

Washington: False B., 5 August 1952 (RFS 131L); 29 May 1949 (RFS 391); 10 June 1949 (RFS 392). Mosquito Pass, 1928 (UW 70530). Mummy Rocks, 30 June 1949 (RFS 304). Golden Gardens, 5 August 1950 (REN 384). Minnesota Reef, 28 May 1949 (RFS 390; 467). Mukkaw B., 21 August 1949 (REN 395). Friday Harbor, July 1903 (UW 64727). Ballard Beach, 5 April 1904 (UW 64725). Fort Lawton, 22 February 1908 (UW 64722).

Habitat.

On rocks in the lower intertidal and subtidal zones to a depth of 5 to 10 fathoms.

Gigartina latissima (Harvey) Eaton, in J. G. Agardh, 1899: 32.

References.

- Harvey, 1862, p. 172 (as *G. mamillosa* var. *latissima*).
 Agardh, 1899, p. 32.
 Collins, 1913, p. 115 (as *G. mamillosa* f. *latissima*).
 Kylin, 1925, p. 29 (as *G. papillata* f. *latissima*).
 Setchell and Gardner, 1933, p. 284.

Distribution.

- Pacific Coast: Table I., British Columbia, to Northern Washington.
 Local: British Columbia: Esquimalt; Sooke (UC 464030); Port Renfrew; Victoria; Table I. (UC 634026).
 Washington: Friday Harbor; Port Townsend (UC 512136).

Habitat.

On rocks in the intertidal zone.

Gigartina mamillosa (Goodenough and Woodward) J. Agardh, 1851: 278.

References.

- Agardh, 1851, p. 278.
 Harvey, 1853, p. 175; 1862, p. 172 (as *G. mamillosa* var. *vulgaris*).
 Setchell and Gardner, 1903, p. 302 (as *G. m. f. dissecta*), p. 301.
 Collins, 1913, p. 115 (as *G. m. f. vulgaris* and *G. m. f. sub-simplex*).
 Kylin, 1925, p. 29 (as *G. papillata*).
 Connell, 1928, p. 100 (in part as *G. papillata*).
 Setchell and Gardner, 1933, p. 285.
 Doty, 1947b, p. 180.
 Rigg and Miller, 1949, p. 331 (as *G. papillata*).

Distribution.

- Pacific Coast: Southern British Columbia to Oregon.
 Local: British Columbia: Departure B.; Esquimalt; Port Renfrew; Amphitrite Point; Victoria (V 1489).
 Washington: Neah B., Tracyton (UC 763556); Whidbey I. (UC 93716).

New Records.

- British Columbia: Cordova B., 29 May 1925 (V 1486).
 Sidney, 1918 (V 1487, 1488); 1909 (V 1490, 1491); 1913 (V 1492).
 Washington: Point Caution, 25 May 1949 (RFS 387, 388).
 Friday Harbor, July 1908 (UW 64721). San Juan I., July 1915 (UW 64075-6).

Habitat.

On rocks in the intertidal zone.

Gigartina papillata (C. Agardh) J. G. Agardh, *in* C. A. Agardh, 1846: 19.

References.

Agardh, 1846, p. 19.

Setchell and Gardner, 1933, p. 287.

Smith, 1944, p. 283.

Dawson, 1945d, p. 66.

Doty, 1947b, p. 180.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Tracyton (UC 763514).

New Records.

Washington: Kanaka B., 26 July 1904 (UW 64732). Mitchell B., 1928 (UW 70532). Whidbey I. (UW 64723). Friday Harbor, 7 July 1904 (UW 64729). Ballard Beach, June 1912 (UW 64623).

Habitat.

On rocks in the intertidal zone.

Gigartina sitchensis Ruprecht, *in* Kjellman, 1889b: 31.

References.

Kjellman, 1889b, p. 31.

Setchell and Gardner, 1933, p. 284.

Distribution.

Pacific Coast: Sitka, Alaska, to Northern Washington.

Local: British Columbia: Vancouver I.

Washington: Whidbey I. (UC 93705).

Habitat.

On rocks probably in the lower intertidal zone.

Gigartina stellata (Stackhouse) Batters, 1902: 64.

References.

Batters, 1902, p. 64.

Setchell and Gardner, 1933, p. 286.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Ucluelet (UC 463976).

Habitat.

On rocks in the intertidal zone.

Gigartina unalaschcensis (Ruprecht) Ruprecht, *in* Kjellman, 1889b: 31.*References.*

- Kjellman, 1889b, p. 31.
 Setchell and Gardner, 1933, p. 282.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: British Columbia: Amphitrite Point (UC 277798).
 Washington: Whidbey I. (UC 93703); Fairhaven (UC 93704).

Habitat.

- On rocks in the intertidal zone.

Rhodoglossum affine (Harvey) Kylin, 1928: 49.*References.*

- Harvey, 1841, p. 408 (as *Chondrus affinis*); 1853, p. 181 (as *C. affinis*); 1862, p. 173 (as *C. affinis*).
 Farlow, 1876, p. 701 (as *Chondrus canaliculatus*).
 Setchell and Gardner, 1903, p. 298.
 Collins, 1913, p. 114 (as *Chondrus affine* and *C. crispus*).
 Kylin, 1928, p. 49; 1941, p. 24.
 Smith, 1944, p. 287.
 Dawson, 1945d, p. 66; 1951, p. 53; 1953a, p. 148.
 Doty, 1947b, p. 181.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Esquimalt; Victoria.

New Records.

- Washington: Edmonds, 6 August 1949 (REN 407). Golden Gardens, 5 August 1949 (REN 379). Mukkaw B., 21 August 1949 (REN 177).

Habitat.

- On rocks in the lower intertidal zone.

Rhodoglossum latissimum J. Agardh, 1876: 187.*References.*

- Agardh, 1876, p. 187.
 Setchell and Gardner, 1903, p. 300.
 Kylin, 1925, p. 28.

Distribution.

- Pacific Coast: Northern British Columbia.
 Local: Washington: Whidbey I. (UC 96097, 96122).

New Records.

British Columbia: Hope I., 11 August 1953 (RFS 675).
 Washington: Rocky B., 7 July 1949 (RFS 194, 501); 12 July 1949 (RFS 195). N. False B., 16 August 1948 (REN 268).

Habitat.

On rocks in the subtidal zone.

Iridaea cordata (Turner) Bory, 1826b: 15.

References.

Bory, 1826b, p. 15.
 Harvey, 1853, p. 180; 1862, p. 173 (as *I. cordata*).
 Saunders, 1901b, p. 434 (as *I. laminarioides* and *I. membranacea*).
 Collins, 1913, p. 115 (as *I. laminarioides* f. *cordata*, *I. l. f. punicea* and *I. l. f. minor*).
 Kylin, 1925, p. 28; 1928, p. 45; 1941, p. 22.
 Connell, 1928, p. 100 (in part as *I. laminarioides*).
 Setchell and Gardner, 1903, p. 298 (as *I. laminarioides* and *I. l. f. typica*), p. 299 (as *I. l. f. cordata*), p. 300 (as *I. l. f. punicea*); 1937, p. 170 (as *Iridophycus cordatum*).
 Setchell, 1940, p. 643 (as *Iridophycus cordatum*).
 Papenfuss, 1947a, p. 13.
 Doty, 1947b, p. 184 (as *Iridophycus cordatum*).
 Silva, 1952, p. 283.

Distribution.

Pacific Coast: Banks I., British Columbia, to Oregon.
 Local: British Columbia: Banks I. (UC 577421); Table I. (UC 634014); Calvert I. (UC 633996); Horswell Channel; Ucluelet (UC 276584); Esquimalt; Port Renfrew; Victoria (V 1500-1502).
 Washington: Whidbey I. (UW 138729, 137877; UC 464012, 547648); Puget Sound; Channel Rocks; San Juan I. (UW 70531, 64740).

New Records.

British Columbia: Mayne I., 1914 (V 1503). Comox, 18 June 1893 (V 1504).
 Washington: Andrews B., 26 July 1949 (RFS 199).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Iridaea coriacea (Setchell and Gardner) Scagel, comb. nov.

References.

Setchell and Gardner, 1937, p. 170 (as *Iridophycus coriaceum*).
 Smith, 1944, p. 290 (as *Iridophycus coriaceum*).
 Papenfuss, 1947a, p. 12.
 Doty, 1947b, p. 183 (as *Iridophycus coriaceum*).

Distribution.

Pacific Coast: Northern Washington to Carmel, California.
Local: Washington: Neah B. (UC 276246).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Iridaea heterocarpa Postels and Ruprecht, 1840: 18.*References.*

- Postels and Ruprecht, 1840, p. 18.
Collins, 1913, p. 114 (as *I. laminarioides* and *I. laminarioides* f. *parvula*?).
Kylin, 1925, p. 28; 1941, p. 23.
Setchell and Gardner, 1937, p. 170 (as *Iridophycus heterocarpum*).
Smith, 1944, p. 291 (as *Iridophycus heterocarpum*).
Sanborn and Doty, 1947, p. 37 (as *Iridophycus heterocarpum*).
Doty, 1947b, p. 183 (as *Iridophycus heterocarpum*).

Distribution.

Pacific Coast: Northern British Columbia to Point Sur, California.
Local: British Columbia: Vancouver I.; Victoria (UC 277470, 763639); Departure B. (UC 277469, 92190); Sooke (UC 512135); Calvert I. (UC 651312).
Washington: San Juan I. (UW 63680); Puget Sound (UC 636708); Griffin B. (UC 276250); Whidbey I. (UC 94349, 94389); Channel Rocks (UC 763640).

New Records.

British Columbia: Mayne I., 1914 (V 1499). Mazzaredo Is., 26 July 1953 (RFS 211H).
Washington: Kanaka B., 28 June 1904 (UW 64737-8). Smith I., 10 July 1952 (RFS 22L, 14L); 28 July 1949 (RFS 198). Whidbey I., May 1910 (UBC 1010; UW 64739). Goose I., 27 May 1949 (RFS 379). False B., 21 July 1949 (RFS 474). Andrews B., 26 July 1949 (RFS 475). Wasp Is., 27 June 1904 (UW 64742).

Habitat.

On rocks in the lower intertidal zone.

Iridaea whidbeyana (Setchell and Gardner) Scagel, comb. nov.*References.*

- Setchell and Gardner, 1937, p. 172 (as *Iridophycus whidbeyana*).
Doty, 1947b, p. 184 (as *Iridophycus whidbeyana*).
Papenfuss, 1947a, p. 12.

Distribution.

Pacific Coast: Southern British Columbia to Oregon.

Local: British Columbia: Amphitrite Point (UC 277794).

Washington: Whidbey I. (UC 94378, 132749, 636700)

New Records.

Washington: West Beach, 12 August 1950 (REN 424).

Habitat.

On rocks in the upper subtidal zone.

Order 6. **RHODYMENIALES**Family 1. **RHODYMENIACEAE**

Faucheia fryeana Setchell, 1912a: 239.

References.

Setchell and Gardner, 1903, p. 313 (as *F. laciniata*).

Setchell, 1912a, p. 239.

Kylin, 1925, p. 39; 1930, p. 33; 1931, p. 8.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Departure B. (UC 392848).

Washington: Neah B.; Friday Harbor (UW 64001; UC 132863); Canoe I. (UC 160729); Cattle Point (UC 93489); Tacoma (UC 160744); Salmon Bank (UC 93505).

New Records.

British Columbia: S. James I., 4 August 1949 (RFS 61).
Cordova B., April 1926 (V 1336, 1338, 1339).

Washington: Eagle Point, 3 July 1952 (RFS 19L). Salmon Bank, 10 July 1952 (REN 663); 2 August 1948 (REN 252); 17 July 1952 (REN 652). Indian Cove, 31 July 1952 (RFS 110L). False B., 21 July 1949 (RFS 60, 62). Kanaka B., July 1907 (UW 64710). Cowlitz B., 19 July 1949 (RFS 63). Lopez Pass, 7 July 1949 (RFS 65). Paradise Cove, 30 August 1949 (REN 677). Edmonds, 6 August 1949 (REN 400).

Habitat.

On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Faucheia laciniata J. G. Agardh, 1884: 40.

References.

Agardh, 1884, p. 40.

Setchell, 1912a, p. 238 (as *F. l. f. pygmaea*).

References—Concluded

- Collins, 1913, p. 117.
 Kylin, 1931, p. 9; 1941, p. 27 (as *F. pygmaea*).
 Doty, 1947b, p. 185.
 Dawson, 1950b, p. 339.
 Sparling, 1956, p. 3; 1957, MSS.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Ucluelet; Amphitrite Point; Cordova B. (UC 420894); Departure B. (UC 392846).
 Washington: Whidbey I.

New Records.

- Washington: Kanaka B., July 1907 (UW 64705). Salmon Bank, 3 July 1952 (RFS 31L); 10 July 1952 (REN 664).
 Smith I., 10 July 1952 (RFS 4L); July 1904 (UW 64706).
 Paradise Cove, 30 August 1949 (REN 675).

Habitat.

- On rocks in the subtidal zone at a depth of 5 to 10 fathoms.

Faucheocolax attenuata Setchell, 1923a: 394.*References.*

- Setchell, 1923a, p. 394.
 Smith, 1944, p. 296.
 Sparling, 1956, p. 3; 1957, MSS.

Distribution.

- Pacific Coast: Northern Washington to Monterey, California.

New Records.

- Washington: Parker Reef, 5 August 1954 (RFS 177L).

Habitat.

- Epiphytic on *Faucheia fryeana*.

Fryeella gardneri (Setchell) Kylin, 1931: 16.*References.*

- Setchell, 1901, p. 125 (as *Faucheia gardneri*).
 Setchell and Gardner, 1903, p. 313 (as *Faucheia gardneri*).
 Kylin, 1925, p. 41 (as *Rhodymenia gardneri*); 1931, p. 16.
 Doty, 1947b, p. 186.

Distribution.

- Pacific Coast: Southern British Columbia to Oregon.
 Local: Washington: Whidbey I. (UC 800580, 93487); Canoe I. (UW 70539, 64002; UC 93485); Friday Harbor (UC 93490); Pleasant Beach (UC 93483); Point Defiance (UC 395439).

New Records.

British Columbia: S. James I., 4 August 1949 (RFS 631).

Washington: Salmon Bank, 3 July 1952 (RFS 36L); 10 July 1952 (RFS 25L); 2 August 1948 (REN 253). Lopez Pass, 31 July 1952 (RFS 119L); 7 July 1949 (RFS 52, 466); 16 August 1948 (REN 269); 31 July 1952 (REN 648). False B., 21 July 1949 (RFS 66). West Beach, 3 September 1949 (REN 116); 12 August 1950 (REN 412).

Habitat.

On rocks and shells in the subtidal zone to a depth of 5 to 10 fathoms.

Botryocladia pseudodichotoma (Farlow) Kylin, 1931: 18.*References.*

Collins, 1913, p. 118 (as *Chrysmenia pseudodichotoma*).

Kylin, 1925, p. 42 (as *Chrysmenia pseudodichotoma*); 1931, p. 18.

Smith, 1944, p. 297.

Taylor, 1945, p. 254.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Vancouver I.

Washington: Turn I.; Peavine Pass; Deer Harbor (UC 93159).

New Records.

Washington: Salmon Bank, 3 July 1952 (RFS 50L); 9 July 1952 (RFS 51L). Hein Bank, 17 July 1952 (RFS 98L). Parker Reef, 19 July 1949 (RFS 236, 365).

Habitat.

On rocks in the subtidal zone at a depth of 5 to 10 fathoms.

Halosaccion glandiforme (Gmelin) Ruprecht, 1851: 279.*References.*

Ruprecht, 1851, p. 279.

Harvey, 1853, p. 194 (as *H. hydrophora*); 1862, p. 174 (as *H. hydrophora*).

Bailey and Harvey, 1862, p. 162 (as *H. hydrophora*).

Saunders, 1901b, p. 436 (as *H. fucicola*).

Setchell and Gardner, 1903, p. 317.

Collins, 1913, p. 118.

Kylin, 1925, p. 43.

Smith, 1944, p. 298.

Sanborn and Doty, 1947, p. 40.

Doty, 1947b, p. 186.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Aleutian Islands, Alaska, to Mexico.

Local: British Columbia: Sooke (UC 463979); Nootka Sound; Port Renfrew (UC 763809); Esquimalt (CAN 843); Departure B., (CAN 210, 791); Victoria (UC 94191); Clayoquot Sound (UC 464009); Ucluelet (UC 277724).

Washington: Brown I. (UW 70542, 63842); San Juan I. (UW 63843, 64173); Whidbey I. (UC 94206); Neah B. (UC 910624); Puget Sound; Minnesota Reef (UC 763482).

New Records.

British Columbia: Ucluelet, 1909 (CAN 82). Masset, 30 July 1948 (RFS 1001L). Sooke, 1 August 1893 (CAN 844). Whiffin Spit, 30 December 1947 (RFS 324, 1013L). Bowers Is., 16 July 1946 (RFS 352). Klucksiwi R., 14 July 1946 (RFS 384). Sidney, 1913 (V 1333); 15 September 1917 (CAN 27).

Washington: Parker Reef, 24 July 1952 (RFS 102L). Goose I., 27 May 1949 (RFS 381). S. False B., 6 July 1948 (REN 246). Rocky B., 7 July 1949 (RFS 471).

Habitat.

On rocks in the middle intertidal zone.

Rhodymenia californica* Kylin, 1931: 21.References.*

- ?Harvey, 1862, p. 170 (as *R. corallina*).
- Collins, 1913, p. 117 (as *R. corallina*).
- Kylin, 1931, p. 21.
- Dawson, 1941, p. 135.
- Smith, 1944, p. 300.
- Sanborn and Doty, 1947, p. 40.
- Doty, 1947b, p. 185.
- Sparling, 1956, p. 3; 1957, MSS.

Distribution.

Pacific Coast: Southern British Columbia to San Diego, California.

Local: British Columbia: Juan de Fuca Strait.

New Records.

Washington: Lopez Pass, 31 July 1952 (RFS 117L). Waadah I., 7 August 1952 (RFS 152L).

Habitat.

On rocks in the lower intertidal and subtidal zones.

Rhodymenia pacifica Kylin, 1931: 21.*References.*

- ?Harvey, 1862, p. 170 (as *Rhodymenia palmetta*).
 Collins, 1913, p. 118 (as *R. palmetta*).
 Kylin, 1931, p. 21; 1941, p. 27.
 Dawson, 1941, p. 142; p. 140 (as *R. palmettiformis*); 1945c, p. 96.
 Smith, 1944, p. 301.
 Sanborn and Doty, 1947, p. 40.
 Doty, 1947b, p. 185.
 Sparling, 1956, p. 3; 1957, MSS.

Distribution.

Pacific Coast: Northern British Columbia to San Diego, California.

Local: British Columbia: Juan de Fuca Strait; Ucluelet.

New Records.

- British Columbia: Mazzaredo Is., 26 July 1953 (RFS 165H).
 Washington: Waadah I., 7 August 1952 (RFS 153L).

Habitat.

On rocks in the lower intertidal and subtidal zones.

Rhodymenia palmata f. **mollis** Setchell and Gardner, 1903: 315.*References.*

- Setchell and Gardner, 1903, p. 315.
 Collins, 1913, p. 117.
 Kylin, 1925, p. 41.
 Smith, 1944, p. 301.
 Sanborn and Doty, 1947, p. 40.
 Doty, 1947b, p. 185.

Distribution.

Pacific Coast: Agattu I., Alaska, to Pacific Grove, California.

Local: British Columbia: Esquimalt (UC 96193); Amphitrite Point; Victoria (CAN 76); Sooke (UC 464025).

Washington: False B.; Whidbey I. (UC 96192); Cattle Point (UC 377885); Seattle (UC 96201).

New Records.

- British Columbia: Sidney, 3 March 1918 (CAN 230).
 Washington: Lincoln Park, 8 August 1949 (REN 106). West Beach, 3 September 1949 (REN 125); 12 August 1950 (REN 413). Mukkaw B., 21 August 1949 (REN 390; 618).

Habitat.

On rocks in the upper subtidal zone.

Rhodymenia palmata (Linnaeus) Greville f. **palmata**, 1830: 93.*References.*

- Greville, 1830, p. 93 (as *R. palmata*).
 Harvey, 1862, p. 171 (as *R. palmata*).
 Setchell and Gardner, 1903, p. 314 (as *R. palmata*).
 Collins, 1913, p. 117 (as *R. palmata*).
 Kylin, 1925, p. 41; 1931, p. 22 (as *R. palmata*).
 Connell, 1928, p. 100 (as *R. palmata*).
 Dawson, 1941, p. 133 (as *R. palmata*).
 Rigg and Miller, 1949, p. 331 (as *R. palmata*).

Distribution.

- Pacific Coast: Aleutian Islands, Alaska, to Northern Washington.
 Local: British Columbia: Horswell Channel; Esquimalt; Amphitrite Point (CAN 889).
 Washington: False B.; Neah B.; Puget Sound.

New Records.

- British Columbia: Victoria, 1913 (CAN 14, 19, 1684, 1625); 15 June 1908 (CAN 1009). Klucksiwi R., 14 July 1946 (RFS 206). Thomas Point, 16 July 1947 (RFS 214). Muir Creek, 12 April 1925 (V 1407). Sidney, October 1917 (CAN 24, 40, 333).
 Washington: American Camp Beach, 8 July 1952 (RFS 73L). Goose I., 21 July 1949 (RFS 196, 207, 503); 27 May 1949 (RFS 203, 205). False B., 10 June 1949 (RFS 204, 358). Minnesota Reef, 7 July 1949 (RFS 504).

Habitat.

- On rocks in the upper subtidal zone.

Rhodymenia pertusa (Postels and Ruprecht) J. Agardh, 1851: 376.*References.*

- Agardh, 1851, p. 376.
 Harvey and Bailey, 1851, p. 371 (as *Rhodomenia wilkesii*).
 Harvey, 1853, p. 147.
 Bailey and Harvey, 1862, p. 61 (as *Rhodomenia wilkesii*).
 Harvey, 1862, p. 171.
 Butters, 1899, p. 205.
 Setchell and Gardner, 1903, p. 313.
 Collins, 1913, p. 118.
 Kylin, 1925, p. 41; 1930, p. 35; 1931, p. 19.
 Connell, 1928, p. 100.
 Dawson, 1941, p. 129.
 Sanborn and Doty, 1947, p. 40.
 Doty, 1947b, p. 185.
 Sparling, 1956, p. 3; 1957, MSS.

Distribution.

Pacific Coast: Alaska to Oregon.

Local: British Columbia: Port Renfrew; Esquimalt; Victoria; Horswell Channel; Point Holmes (V 132); Qualicum B. (V 1686; UC 90763); Amphitrite Point (UC 277799).

Washington: Port Townsend; Port Orchard (UC 763676); Point Roberts; Whidbey I. (UBC 1376; UW 138221; UC 491859); Seattle; Canoe I.; Juan de Fuca Strait; Friday Harbor (UC 96241); Deer Harbor (UC 96247).

New Records.

British Columbia: Queen Charlotte Is., 1911 (CAN 130). Sidney, 1913 (V 1406); 16 January 1918 (CAN 7). Sandstone Creek, 10 July 1925 (V 1404). S. James I., 4 August 1949 (RFS 95, 114). Parksville, June 1944 (RFS 238). Departure B., 26 June 1908 (CAN 1681). Brockton Point, 30 June 1945 (RFS 512). Comox, 18 June 1893 (CAN 1685).

Washington: Salmon Bank, 3 July 1952 (RFS 62L); 10 July 1952 (RFS 63L). Friday Harbor, July 1925 (UW 64468). Edmonds, 6 August 1944 (REN 408). Crescent B., 25 June 1949 (RFS 99). False B., 10 June 1949 (RFS 100, 101). Parker Reef, 19 July 1949 (RFS 505). Lopez Pass, 7 July 1949 (RFS 506). Mummy Rocks, 30 June 1949 (RFS 141). Mukkaw B., 21 August 1949 (REN 394). West Beach, 3 September 1949 (REN 127); 12 August 1950 (REN 414). Deer Harbor, 14 July 1907 (UW 64790-2).

Habitat.

On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Rhodymenia stipitata Kylin, 1925: 41.*References.*

Kylin, 1925, p. 41; 1931, p. 22.

Dawson, 1941, p. 130.

Distribution.

Pacific Coast: British Columbia to Northern Washington.

Local: British Columbia: Vancouver I.; Calvert I. (UC 634001).

Washington: Friday Harbor; Puget Sound.

New Records.

Washington: Smith I., 26 July 1948 (REN 301).

Habitat.

On rocks and wood in the upper subtidal zone.

Rhodymeniocolax botryoidea Setchell, 1923: 394.*References.*

Setchell, 1923, p. 394.

Dawson, 1945c, p. 96.

Sparling, 1957, MSS.

Distribution.

Pacific Coast: Northern Washington to San Diego, California.

New Records.

Washington: Lopez Pass, 25 June 1952 (RFS 115).

Habitat.

Parasitic on several species of *Rhodymenia*, including *R. pertusa*.

Family 2. CHAMPIACEAE

Gastroclonium coulteri (Harvey) Kylin, 1931: 30.*References.*

Harvey, 1853, p. 78 (as *Lomentaria ovalis* var. *coulteri*).

Setchell and Gardner, 1903, p. 316 (as *Lomentaria ovalis* f. *subarticulata*).

Collins, 1913, p. 118 (as *Lomentaria ovalis* f. *subarticulata*).

Kylin, 1925, p. 42 (as *Chylocladia ovalis*); 1931, p. 30.

Smith, 1944, p. 303.

Dawson, 1945d, pp. 62 and 67; 1951, p. 53.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Nootka Sound; Ucluelet (CAN 89, 906, 1101; UC 277415); Kvarno I.

Washington: Tracyton (UC 763516, 278265); East Sound (UW 64599; UC 93547); Cape Flattery (UC 638534).

New Records.

British Columbia: Comox, 21 June 1893 (CAN 321). Kvarno I., 20 July 1909 (CAN 1102, 820).

Washington: Lincoln Park, 8 August 1949 (REN 95). Golden Gardens, 5 August 1949 (REN 375).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Order 7. CERAMIALES

Family 1. CERAMIACEAE

***Trailliella intricata** Batters, 1896a: 10.*References.*

- Batters, 1896a, p. 10.
 Kylin, 1925, p. 44.
 Koch, 1950, p. 635; 1951, p. 78.
 Dawson, 1952a, p. 55.

Distribution.

Pacific Coast: Northern Washington to Mexico.
 Local: Washington: Friday Harbor.

New Records.

Washington: Mosquito Pass, 12 June 1948.

Habitat.

On old piles and epiphytic on other algae in the lower intertidal zone.

Antithamnion defectum Kylin, 1925: 46.*References.*

- Kylin, 1925, p. 46.
 Smith, 1944, p. 308.
 Sanborn and Doty, 1947, p. 41.
 Doty, 1947b, p. 189.

Distribution.

Pacific Coast: Northern British Columbia to Monterey, California.

Local: Washington: Friday Harbor; Canoe I.; Peavine Pass.

New Records.

British Columbia: Mazzaredo Is., 26 July 1953 (RFS 474H).
 Washington: Lopez Pass, 7 July 1949 (RFS 58). Salmon Bank, 12 July 1948 (REN 297). Brown I., 10 August 1949 (RFS 448). Mukkaw B., 21 August 1949 (REN 184).

Habitat.

On rocks, shells, and old piles, and epiphytic on other algae in the subtidal zone to a depth of 5 to 10 fathoms.

* According to Koch (1950 and 1951) *Trailliella intricata* Batters is a tetrasporophytic stage in the life cycle of *Bonnemaïsonnia* (See p. 110).

Antithamnion densiusculum Gardner, 1927c: 374.*References.*

- Setchell and Gardner, 1903, p. 342 (in part as *A. subulatum*).
 Collins, 1913, p. 124 (as *A. subulatum*).
 Gardner, 1927c, p. 374.
 Smith, 1944, p. 313.

Distribution.

- Pacific Coast: Southern British Columbia to Pacific Grove, California.
 Local: British Columbia: Esquimalt (UC 68298); Port Renfrew.
 Washington: Puget Sound; Tacoma (UW 64434); Whidbey I.; Griffin B. (UC 296629).

Habitat.

- On rocks and epiphytic on other algae in the lower intertidal and upper subtidal zones.

Antithamnion floccosum (Müller) Kleen, 1874: 21.*References.*

- Kleen, 1874, p. 21.
 Kylin, 1925, p. 47.

Distribution.

- Pacific Coast: Southern British Columbia to Northern Washington.
 Local: British Columbia: Victoria (UC 90748); Esquimalt (UC 68299).
 Washington: Friday Harbor (UC 296680).

Habitat.

- On old piles and epiphytic on other algae in the subtidal zone.

Antithamnion glanduliferum Kylin, 1925: 47.*References.*

- Kylin, 1925, p. 47.
 Smith, 1944, p. 310.
 Sanborn and Doty, 1947, p. 41.
 Doty, 1947b, p. 189.
 Dawson, 1953b, p. 342.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Victoria (UC 296681).
 Washington: Friday Harbor (UC 296679, 132861); Puget Sound.

New Records.

Washington: West Beach, 24 August 1949 (REN 21). Seattle,
9 August 1949 (REN 68); 7 August 1949 (REN 72).
Canoe I., 22 July 1907 (UW 64774).

Habitat.

On rocks and epiphytic on other algae, including the blades
of species of *Laminaria* in the upper subtidal zone.

Antithamnion kylinii Gardner, 1927d: 411.

References.

Gardner, 1927d, p. 411.
Smith, 1944, p. 307.
Doty, 1947b, p. 190.
Dawson, 1953, p. 342.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.
Local: British Columbia: Victoria (UC 274016, 284038).

Habitat.

On shells and piling in the subtidal zone.

Antithamnion nigricans Gardner, 1927d: 409.

References.

Gardner, 1927d, p. 409.

Distribution.

Pacific Coast: Southern British Columbia.
Local: British Columbia: Port Renfrew.

Habitat.

Epiphytic on the stipe of *Lessoniopsis littoralis*.

Antithamnion occidentale Kylin, 1925: 47.

References.

Harvey, 1862, p. 175 (as *Callithamnion americanum*).
Setchell and Gardner, 1903, p. 342 (as *A. americanum*,
A. pylaisaei f. *norvegica* and *A. pylaisaei*); p. 344 (as
A. boreale).
Collins, 1913, p. 124 (as *A. pylaisaei*).
Kylin, 1925, p. 47.
Smith, 1944, p. 312.
Dawson, 1945a, p. 57.
Doty, 1947b, p. 190.

Distribution.

Pacific Coast: Alaska to La Jolla, California.

Local: British Columbia: Esquimalt; Victoria (UC 276674).

Washington: Friday Harbor (UW 64519; UC 92525, 296601); Peavine Pass; Cattle Point; Port Ludlow; San Juan I.; Whidbey I. (UC 92549); West Sound (UC 92544).

New Records.

British Columbia: Sidney, 1917 (CAN 250).

Washington: Salmon Bank, 17 July 1952 (REN 659).

Habitat.

On shells and epiphytic on other algae, including *Nereocystis*, in the subtidal zone to a depth of 5 to 10 fathoms.

Antithamnion pacificum (Harvey) Kylin, 1925: 47.

References.

Harvey, 1862, p. 176 (as *Callithamnion floccosum* var. *pacificum*).

Saunders, 1901b, p. 439 (as *Callithamnion floccosum* var. *pacificum*).

Setchell and Gardner, 1903, p. 341 (as *A. floccosum* var. *pacificum*).

Collins, 1913, p. 124 (as *A. floccosum* var. *pacificum*).

Kylin, 1925, p. 47.

Smith, 1944, p. 310.

Dawson, 1944a, p. 313.

Doty, 1947b, p. 190.

Distribution.

Pacific Coast: Yakutat B., Alaska, to Mexico.

Local: British Columbia: Esquimalt (UC 92539); Port Renfrew; Departure B. (CAN 790); Victoria.

Washington: Whidbey I.; Friday Harbor (UC 284031); Pleasant Beach; Orcas I.; Puget Sound; Cattle Point (UC 296678).

New Records.

British Columbia: Sandstone Creek, 10 July 1925 (V 1297, 1298). Sidney, 1913 (V 1299; CAN 15); October 1916 (CAN 49); 1917 (CAN 285); 1912 (CAN 976).

Washington: Friday Harbor, 4 August 1954 (RFS 176L). Brown I., 5 June 1949 (RFS 277, 279). West Beach, 24 August 1949 (REN 9, 22); 20 June 1951 (REN 605).

Habitat.

On piling and epiphytic on other algae, especially the stipes of *Nereocystis* in the subtidal zone.

Antithamnion subulatum (Harvey) J. Agardh, 1892: 20.*References.*

- Harvey, 1862, p. 175 (as *Callithamnion subulatum*).
 Agardh, 1892, p. 20.
 Setchell and Gardner, 1903, p. 342 (in part).
 Collins, 1913, p. 124.
 Kylin, 1925, p. 50.
 Smith, 1944, p. 312.
 Doty, 1947b, p. 190.

Distribution.

- Pacific Coast: Southern British Columbia to Monterey, California.
 Local: British Columbia: Esquimalt; Port Renfrew.
 Washington: Friday Harbor (UW 64432, 64436, 137714; UBC 642; UC 402212, 276191); Shaw I.; Canoe I.; Whidbey I. (UC 296631).

New Records.

- Washington: Seattle, 7 August 1949 (REN 70). West Beach, 3 September 1949 (REN 117); 20 June 1951 (REN 604); 12 August 1950 (REN 630). N. False B., 26 August 1950 (REN 428).

Habitat.

- On piling and on shells in the subtidal zone to a depth of 5 to 10 fathoms.

Antithamnion uncinatum Gardner, 1927d: 408.*References.*

- Gardner, 1927d, p. 408.
 Smith, 1944, p. 311.
 Sanborn and Doty, 1947, p. 40.
 Doty, 1947b, p. 190.

Distribution.

- Pacific Coast: Northern Washington to Carmel, California.
 Local: Washington: Juan de Fuca Strait; Puget Sound.

New Records.

- Washington: Mukkaw B., 30 April 1948 (REN 293); 21 August 1949 (REN 207).

Habitat.

- Epiphytic on other larger algae, especially *Nereocystis luetkeana*.

Platythamnion pectinatum Kylin, 1925: 53.*References.*

- Kylin, 1925, p. 53.
 Smith, 1944, p. 316.
 Dawson, 1945d, p. 62.
 Sanborn and Doty, 1947, p. 41.
 Doty, 1947b, p. 191.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Hope I., British Columbia, to Mexico.
 Local: Washington: Friday Harbor; Canoe I.; Peavine Pass;
 Whidbey I.; Neah B.; Puget Sound; Tacoma (UC
 266308).

New Records.

- British Columbia: Hope I., 11 August 1953 (RFS 605H).
 Washington: Salmon Bank, 12 July 1948 (REN 267).

Habitat.

- On piling, shells and epiphytic on other algae in the subtidal
 zone to a depth of 5 to 10 fathoms.

Platythamnion reversum (Setchell and Gardner) Kylin, 1952: 54.*References.*

- Setchell and Gardner, 1903, p. 345 (as *P. heteromorphum* f.
reversum).
 Kylin, 1925, p. 54.
 Sanborn and Doty, 1947, p. 41.

Distribution.

- Pacific Coast: Northern Washington to Oregon.
 Local: Washington: Friday Harbor (UC 95052); Whidbey I.
 (UW 63491; UC 95054); Peavine Pass; Canoe I.;
 West Sound (UC 95050); Kanaka B. (UC 276865);
 Salmon Bank (UC 95053).

New Records.

- Washington: Salmon Bank, 17 July 1952 (RFS 104L; REN
 658). Brown I., 14 June 1949 (RFS 281). Goose I.,
 21 July 1949 (RFS 286, 487). Lopez Pass, 7 July 1949
 (RFS 287). West Beach, 3 September 1949 (REN 113,
 462); 20 June 1951 (REN 601).

Habitat.

- On piling, shells and epiphytic on other algae in the subtidal
 zone to a depth of 5 to 10 fathoms.

New Records.

Washington: West Beach, 24 August 1949 (REN 21). Seattle,
9 August 1949 (REN 68); 7 August 1949 (REN 72).
Canoe I., 22 July 1907 (UW 64774).

Habitat.

On rocks and epiphytic on other algae, including the blades
of species of *Laminaria* in the upper subtidal zone.

Antithamnion kylinii Gardner, 1927d: 411.

References.

Gardner, 1927d, p. 411.
Smith, 1944, p. 307.
Doty, 1947b, p. 190.
Dawson, 1953, p. 342.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.
Local: British Columbia: Victoria (UC 274016, 284038).

Habitat.

On shells and piling in the subtidal zone.

Antithamnion nigricans Gardner, 1927d: 409.

References.

Gardner, 1927d, p. 409.

Distribution.

Pacific Coast: Southern British Columbia.
Local: British Columbia: Port Renfrew.

Habitat.

Epiphytic on the stipe of *Lessoniopsis littoralis*.

Antithamnion occidentale Kylin, 1925: 47.

References.

Harvey, 1862, p. 175 (as *Callithamnion americanum*).
Setchell and Gardner, 1903, p. 342 (as *A. americanum*,
A. pylaisaei f. *norvegica* and *A. pylaisaei*); p. 344 (as
A. boreale).
Collins, 1913, p. 124 (as *A. pylaisaei*).
Kylin, 1925, p. 47.
Smith, 1944, p. 312.
Dawson, 1945a, p. 57.
Doty, 1947b, p. 190.

Platythamnion villosum Kylin, 1925: 51.*References.*

- Setchell and Gardner, 1903, p. 344 (as *P. heteromorphum* f. *typicum*).
 Collins, 1913, p. 125 (as *P. heteromorphum* f. *typicum*).
 Kylin, 1925, p. 51.
 Connell, 1928, p. 100 (as *P. heteromorphum*).
 Smith, 1944, p. 315.
 Sanborn and Doty, 1947, p. 41.
 Doty, 1947b, p. 191.
 Dawson, 1953, p. 343.

Distribution.

- Pacific Coast: Sitka, Alaska, to Mexico.
 Local: British Columbia: Page Lagoon; Departure B. (CAN 301).
 Washington: Friday Harbor (UW 64770; UC 276863, 763621); Shaw I.; Canoe I.; Puget Sound.

New Records.

- British Columbia: Ucluelet, 12 August 1909 (CAN 1078). ,
 Washington: Kanaka B., July 1907 (UW 64769). Brown I.
 28 July 1954 (RFS 174L).

Habitat.

- On rocks, shells, piling and epiphytic on other algae in the subtidal zone to a depth of 5 to 10 fathoms.

Callithamnion acutum Kylin, 1925: 55.*References.*

- Kylin, 1925, p. 55.

Distribution.

- Pacific Coast: Northern Washington.
 Local: Washington: Friday Harbor; Cattle Point; Whidbey I.

Habitat.

- On wood and other substrata in the subtidal zone.

Callithamnion biseriatum Kylin, 1925: 54.*References.*

- Kylin, 1925, p. 54.
 Smith, 1944, p. 319.

Distribution.

- Pacific Coast: Northern British Columbia to Monterey, California.
 Local: Washington: Friday Harbor; Brown I.; Peavine Pass.

Distribution.

Pacific Coast: Alaska to La Jolla, California.

Local: British Columbia: Esquimalt; Victoria (UC 276674).

Washington: Friday Harbor (UW 64519; UC 92525, 296601); Peavine Pass; Cattle Point; Port Ludlow; San Juan I.; Whidbey I. (UC 92549); West Sound (UC 92544).

New Records.

British Columbia: Sidney, 1917 (CAN 250).

Washington: Salmon Bank, 17 July 1952 (REN 659).

Habitat.

On shells and epiphytic on other algae, including *Nereocystis*, in the subtidal zone to a depth of 5 to 10 fathoms.

Antithamnion pacificum (Harvey) Kylin, 1925: 47.

References.

Harvey, 1862, p. 176 (as *Callithamnion floccosum* var. *pacificum*).

Saunders, 1901b, p. 439 (as *Callithamnion floccosum* var. *pacificum*).

Setchell and Gardner, 1903, p. 341 (as *A. floccosum* var. *pacificum*).

Collins, 1913, p. 124 (as *A. floccosum* var. *pacificum*).

Kylin, 1925, p. 47.

Smith, 1944, p. 310.

Dawson, 1944a, p. 313.

Doty, 1947b, p. 190.

Distribution.

Pacific Coast: Yakutat B., Alaska, to Mexico.

Local: British Columbia: Esquimalt (UC 92539); Port Renfrew; Departure B. (CAN 790); Victoria.

Washington: Whidbey I.; Friday Harbor (UC 284031); Pleasant Beach; Orcas I.; Puget Sound; Cattle Point (UC 296678).

New Records.

British Columbia: Sandstone Creek, 10 July 1925 (V 1297, 1298). Sidney, 1913 (V 1299; CAN 15); October 1916 (CAN 49); 1917 (CAN 285); 1912 (CAN 976).

Washington: Friday Harbor, 4 August 1954 (RFS 176L). Brown I., 5 June 1949 (RFS 277, 279). West Beach, 24 August 1949 (REN 9, 22); 20 June 1951 (REN 605).

Habitat.

On piling and epiphytic on other algae, especially the stipes of *Nereocystis* in the subtidal zone.

New Records.

British Columbia: Queen Charlotte Is., 1911 (V 1304).

Washington: Salmon Bank, 24 August 1954 (RFS 200L).

West Beach, 3 September 1949 (REN 124).

Habitat.

Epiphytic on algae in the subtidal zone to a depth of 5 to 10 fathoms.

Callithamnion bisporum Gardner, 1927d: 403.

References.

Gardner, 1927d, p. 403.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Friday Harbor (UC 296615); Argyle.

Habitat.

On piling in the upper subtidal zone.

Callithamnion laxum Setchell and Gardner, in Gardner, 1927d: 407.

References.

Setchell and Gardner, 1903, p. 339 (in part as *Ceratothamnion pikeanum* f. *laxum*); p. 339 (as *Callithamnion baileyi*).

Gardner, 1927d, p. 407.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Esquimalt; Nanaimo (UC 389923).
Washington: Brown I. (UW 64398; UC 284043, 276860); Juan de Fuca Strait; Whidbey I.; Friday Harbor (UC 266416); Port Townsend (UC 93029).

New Records.

Washington: Mackaye Harbor, July 1908 (UW 64806).

Habitat.

On rocks in the lower intertidal zone.

Callithamnion pikeanum var. **pacificum** (Harvey) Setchell and Gardner, in Gardner, 1927d: 406.

References.

Harvey, 1862, p. 175 (as *C. arbuscula* var. *pacifica*).

Setchell and Gardner, 1903, p. 339 (in part as *Ceratothamnion pikeanum* f. *laxum*).

Collins, 1913, p. 124 (as *Ceratothamnion pikeanum* f. *laxum*).

Gardner, 1927d, p. 406.

Doty, 1947b, p. 191.

Hollenberg, 1948, p. 158.

Distribution.

Pacific Coast: Shumagin Is., Alaska, to Oregon.

Local: British Columbia: Esquimalt; Victoria (CAN 66).

Washington: Juan de Fuca Strait.

Habitat.

On rocks in the middle and lower intertidal zones.

Callithamnion pikeanum Harvey var. **pikeanum**, 1853: 230.*References.*

Harvey, 1853, p. 230 (as *C. pikeanum*).

Setchell and Gardner, 1903, p. 339 (as *Ceratothamnion pikeanum*).

Kylin, 1925, p. 56 (as *C. pikeanum*).

Gardner, 1927d, p. 405 (as *C. pikeanum*).

Smith, 1944, p. 318 (as *C. pikeanum*).

Sanborn and Doty, 1947, p. 41 (as *C. pikeanum*).

Doty, 1947b, p. 191 (as *C. pikeanum*).

Rigg and Miller, 1949, p. 331 (as *C. pikeanum*).

Distribution.

Pacific Coast: Vallenar Point, Alaska, to Carmel, California.

Local: British Columbia: Esquimalt (UC 68306); Amphitrite Point (UC 277793).

Washington: Brown I. (UC 763622); Turn I.; Friday Harbor; Kanaka B. (UC 294565); Neah B.; Whidbey I. (UC 296674); Port Townsend (UC 294568).

New Records.

British Columbia: Victoria, 1913 (V 1305; CAN 10, 199, 812). Ucluelet, May 1909 (CAN 198). Mazzaredo Is., 26 July 1953 (RFS 165H).

Washington: Turn Rock, 28 May 1949 (RFS 399). Parker Reef, 24 July 1952 (RFS 101L). Waadah I., 7 August 1952 (RFS 145L). Minnesota Reef, 28 May 1949 (RFS 398). False B., 12 June 1949 (RFS 451).

Habitat.

On rocks in the middle and lower intertidal zones.

Pleonosporium abysicola Gardner, 1927c: 380.*References.*

Gardner, 1927c, p. 380.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Near Friday Harbor.

Habitat.

Epiphytic on *Ceramium* species in the subtidal zone.

Pleonosporium squarrosum var. **obovatum** Gardner, 1927d: 414.*References.*

- Gardner, 1927d, p. 414.
Dawson, 1945c, p. 96.

Distribution.

- Pacific Coast: Southern British Columbia.
Local: British Columbia: Sidney (UC 273868).

Habitat.

- Probably in the lower intertidal and subtidal zones.

Pleonosporium squarrosum Kylin var. **squarrosum**, 1925: 57.*References.*

- Kylin, 1925, p. 57 (as *P. squarrosum*).

Distribution.

- Pacific Coast: Southern British Columbia to Northern Washington.
Local: Washington: Friday Harbor (UC 279579).

New Records.

- British Columbia: Whiffin Spit, 23 August 1950 (REN 435).
Washington: N. False B., 26 August 1950 (REN 426).

Habitat.

- On piling and rocks in the lower intertidal zone.

Pleonosporium vancouverianum J. Agardh, 1892: 37.*References.*

- Harvey, 1862, p. 175 (as *Callithamnion thujoideum*).
Agardh, 1892, p. 37
Setchell and Gardner, 1903, p. 338.
Collins, 1913, p. 124.
Kylin, 1925, p. 57.
Smith, 1944, p. 321.

Distribution.

- Pacific Coast: Northern British Columbia to Monterey, California.
Local: British Columbia: Esquimalt.
Washington: Friday Harbor (UW 63492, 64555; UC 132880, 95089); Peavine Pass; East Sound (UC 95090); Puget Sound.

New Records.

- British Columbia: Queen Charlotte Is., 1911 (V 1515).
Washington: Kanaka B., 27 July 1907 (UW 64771). West Beach, 24 August, 1950 (REN 23). Golden Gardens, 9 August 1949 (REN 64); 5 August 1949 (REN 378). Seattle, 7 August 1949 (REN 71).

Habitat.

On piling, rocks, and worm tubes in the subtidal zone to a depth of 5 to 10 fathoms.

Griffithsia pacifica Kylin, 1925: 58.*References.*

- ?Setchell and Gardner, 1903, p. 338.
 Collins, 1913, p. 123 (as *G. shousboei*).
 Kylin, 1925, p. 58.
 Connell, 1928, p. 100 (as *G. shousboei*).
 Smith, 1944, p. 324.
 Dawson, 1944a, p. 314; 1951, p. 53.
 Taylor, 1945, p. 268.
 Sanborn and Doty, 1947, p. 41.
 Doty, 1947b, p. 192.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Page Lagoon; Departure B.; Little Toquart B. (CAN 67).
 Washington: Friday Harbor (UC 279574); Turn I.; Neah B.; Tracyton (UC 763548); Keyport; Puget Sound.

New Records.

- Washington: Brown I., 28 July 1954 (RFS 171L); 1928 (UW 70544). Mukkaw B., 21 August 1949 (REN 26).

Habitat.

On piling and rocks in the lower intertidal and subtidal zones to a depth of 5 to 10 fathoms.

Ceramium californicum J. Agardh, 1894: 45.*References.*

- Harvey, 1862, p. 175 (as *Ceramium diaphanum*).
 Agardh, 1894, p. 45.
 Setchell and Gardner, 1903, p. 346.
 Collins, 1913, p. 126.
 Kylin, 1941, p. 29.
 Sanborn and Doty, 1947, p. 42.
 Doty, 1947b, p. 187.
 Rigg and Miller, 1949, p. 331.
 Dawson, 1950a, p. 123; 1951, p. 53; 1953a, p. 154.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Esquimalt.

Washington: Puget Sound (UW 64525); Neah B.;
Point Roberts; Whidbey I.

New Records.

Washington: Salmon Bank, 3 July 1952 (RFS 43L); 12 July 1948 (REN 298). West Beach, 3 September 1949 (REN 114, 118, 141). Seattle, 7 August 1949 (REN 79). Golden Gardens, 5 August 1949 (REN 560).

Habitat.

Epiphytic on other algae, including *Agardhiella* and *Gracilariaopsis* in the lower intertidal and upper subtidal zones.

Ceramium codicola J. Agardh, 1894: 23.*References.*

Agardh, 1894, p. 23.

Setchell and Gardner, 1903, p. 346.

Collins, 1913, p. 126.

Smith, 1944, p. 326.

Dawson, 1944a, p. 318; 1945d, p. 67; 1949a, p. 26; 1950a, p. 117; 1951, p. 53.

Sanborn and Doty, 1947, p. 42.

Doty, 1947b, p. 187.

Distribution.

Pacific Coast: Sitka, Alaska, to Mexico.

Local: British Columbia: Amphitrite Point; Ucluelet (UC 277761).

Washington: Port Ludlow (UC 92929).

New Records.

Washington: West Beach, 24 August 1949 (REN 219). Mukkaw B., 30 May 1948 (REN 285).

Habitat.

Epiphytic on *Codium fragile*.

Ceramium pacificum (Collins) Kylin, 1925: 61.*References.*

Setchell and Gardner, 1903, p. 345 (as *C. rubrum* var. *pacificum*).

Collins, 1913, p. 125 (as *C. rubrum* var. *pacificum*).

Kylin, 1925, p. 61.

Connell, 1928, p. 100 (as *C. rubrum* var. *pacificum*).

References—Concluded

- Smith, 1944, p. 326.
 Dawson, 1945d, p. 66; 1950a, p. 120.
 Sanborn and Doty, 1947, p. 42.
 Doty, 1947b, p. 187.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Northern British Columbia to Mexico.
 Local: British Columbia: Port Renfrew; Barkley Sound;
 Departure B. (V 1527, 1529).
 Washington: Tracyton (UC 763546); Whidbey I.

New Records.

- British Columbia: Sidney, 1917 (V 1528). Mayne I., 1914
 (V 1530). Chanal Reef, 29 July 1953 (RFS 609H).
 Washington: Golden Gardens, 9 August 1949 (REN 91).
 Edmonds, 6 August 1949 (REN 403). Argyle, July
 1925 (UW 64364).

Habitat.

- On rocks in the lower intertidal zone.

Ceramium rubrum (Hudson) C. Agardh, 1811: 17.*References.*

- C. A. Agardh, 1811, p. 17.
 Harvey, 1853, p. 213; 1862, p. 175.
 Bailey and Harvey, 1862, p. 163.
 J. G. Agardh, 1894, p. 38.
 Setchell and Gardner, 1903, p. 345.
 Collins, 1913, p. 125 (also as *C. r. f. radians*).
 Kylin, 1944, p. 69.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: British Columbia: Port Renfrew; Esquimalt.
 Washington: Puget Sound.

New Records.

- Washington: Friday Harbor, June 1908 (UW 64566). Whid-
 bey I., June 1921 (UW 64363, 64367).

Habitat.

- Probably in the lower intertidal zone.

Ceramium strictum Harvey, 1851: 334.*References.*

- Harvey, 1851, p. 334.
 Collins, 1913, p. 126.
 Connell, 1928, p. 100 (as *C. rubrum f. strictum*).
 Kylin, 1944, p. 66.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Page Lagoon; Departure B.

Habitat.

Probably in the lower intertidal zone.

Ceramium washingtoniense Kylin, 1925: 62.*References.*

Kylin, 1925, p. 62.

Sanborn and Doty, 1947, p. 42.

Doty, 1947b, p. 187.

Rigg and Miller, 1949, p. 331.

Dawson, 1950a, p. 122.

Distribution.

Pacific Coast: Northern Washington to Oregon.

Local: Washington: False B. (UC 279578); Neah B.

New Records.

Washington: Salmon Bank, 17 July 1952 (RFS 91L, 92L).

Lopez Pass, 31 July 1952 (RFS 120L). False B., 10 June 1949 (RFS 290, 457). Rocky B., 12 July 1949 (RFS 393, 456, 458). Kanaka B., 25 July 1907 (UW 64526).

Habitat.

On rocks and epiphytic on other algae in the middle and lower intertidal and upper subtidal zones.

Microcladia borealis Ruprecht, 1851: 259.*References.*

Ruprecht, 1851, p. 259.

Harvey, 1853, p. 210; 1862, p. 175.

Saunders, 1901b, p. 440.

Setchell and Gardner, 1903, p. 346.

Collins, 1913, p. 126.

Kylin, 1925, p. 63.

Smith, 1944, p. 330.

Sanborn and Doty, 1947, p. 43.

Doty, 1947b, p. 188.

Distribution.

Pacific Coast: Unalaska I., Alaska, to San Simeon, California.

Local: British Columbia: Amphitrite Point (UC 277792); Port Renfrew; Esquimalt (CAN 65, 1077); Sidney (UC 277811); Point Holmes (CAN 887); Sooke (UC 464018); Nootka; Victoria (UC 90758).

Washington: Friday Harbor (UC 94612); False B.; Turn Rock; Brown I.; Whidbey I. (UC 94606); Puget Sound.

New Records.

British Columbia: Pearse Is., 3 August 1885 (CAN 190). Beacon Hill, July 1913 (CAN 126, 191, 192, 805). Sandstone Creek, 10 July 1925 (V 1326). Sidney, 1913 (V 1321; CAN 9, 246). Parry B., June 1925 (V 1323). Mayne I., 1914 (CAN 109). Departure B., 2 August 1908 (CAN 193, 868, 969). Nanaimo, 13 July 1887 (CAN 195, 806).

Washington: Waadah I., 7 August 1952 (RFS 139L). False B., 29 May 1949 (RFS 317). Point Caution, 25 May 1949 (RFS 318). Goose I., 27 May 1949 (RFS 478). West Beach, 24 August 1949 (REN 24).

Habitat.

On rocks in the upper intertidal zone.

Microcladia coulteri Harvey, 1853: 209.

References.

Harvey, 1853, p. 209; 1862, p. 175.

Setchell and Gardner, 1903, p. 347 (also as *M. californica*).

Collins, 1913, p. 126 (also as *M. californica*).

Kylin, 1925, p. 63.

Smith, 1944, p. 329.

Dawson, 1945d, p. 67.

Doty, 1947b, p. 188.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Port Renfrew; Esquimalt; Comox (CAN 763; UC 90738); Victoria (CAN 368, 779; UC 90742).

Washington: False B.; Whidbey I. (UC 94644); Neah B.; Tracyton (UC 763545).

New Records.

British Columbia: Sidney, October 1917 (CAN 252). Beacon Hill, 2 June 1908 (CAN 61). Mayne I., 1914 (CAN 58). Sandstone Creek, 10 July 1925 (V 1318, 1319). Second Beach, 18 April 1949 (RFS 251). Oak B., 27 March 1897 (V 1322). Cordova B., January 1925 (V 1324). Gordon Head, 8 May 1887 (CAN 212).

Washington: Salmon Bank, 10 July 1952 (RFS 3L). Smith I., 28 July 1949 (RFS 282, 479). False B., 10 June 1949 (RFS 283, 359). Lincoln Park, 8 August 1949 (REN 94). West Beach, 3 September 1949 (REN 142). Mukkaw B., 21 August 1949 (REN 203).

Habitat.

Epiphytic on larger foliose algae, especially species of *Gigartina*, *Prionitis*, and *Grateloupia* in the lower intertidal and upper subtidal zones.

Ptilota asplenioides (Esper) C. Agardh, 1822: 387.

References.

- Agardh, 1822, p. 387.
 Harvey, 1853, p. 221.
 Bailey and Harvey, 1862, p. 163.
 Setchell and Gardner, 1903, p. 339.
 Papenfuss, 1947a, p. 14.
 Doty, 1947b, p. 189 (as *Plumaria asplenioides*).
 Silva, 1953, p. 224; 1955, p. 13.

Distribution.

Pacific Coast: Yakutat B., Alaska, to Northern Washington.
 Local: Washington: Puget Sound.

New Records.

British Columbia: Langara I., 27 July 1953 (RFS 972).

Habitat.

Epiphytic on other algae in the upper subtidal zone.

Ptilota californica Ruprecht ex Harvey, 1853: 222.

References.

- Harvey, 1853, p. 222.
 Smith, 1944, p. 332.
 Doty, 1947b, p. 189 (as *Plumaria californica*).

Distribution.

Pacific Coast: Northern British Columbia to San Diego, California.

New Records.

British Columbia: Juan de Fuca Strait (UC 763619). Hazardous Cove, 27 July 1953 (RFS 779H).
 Washington: Neah B. (UC 276216).

Habitat.

On rocks or epiphytic on other algae in the lower intertidal and upper subtidal zones.

Ptilota filicina (Farlow) J. Agardh, 1876: 76.

References.

- Harvey, 1853, p. 222 (as *P. californica* var. *concinna*).
 Agardh, 1876, p. 76.

References—Concluded

- Setchell and Gardner, 1903, p. 340.
 Collins, 1913, p. 124.
 Smith, 1944, p. 333.
 Sanborn and Doty, 1947, p. 42.
 Doty, 1947b, p. 188 (as *Plumaria filicina*).
 Hollenberg, 1948, p. 158.
 Silva, 1955, p. 13.

Distribution.

- Pacific Coast: Bering Sea to Santa Barbara, California.
 Local: British Columbia: Ucluelet (UC 277770); Victoria (UC 90756); Port Renfrew; Esquimalt.
 Washington: Brown I. (UC 763617); Whidbey I. (UC 276228).

New Records.

- British Columbia: Point Holmes, 18 June 1893 (CAN 1050).
 Washington: Parker Reef, 24 July 1952 (RFS 100L). Crescent B., 25 June 1949 (RFS 278, 288, 289, 500). Mukkaw B., 21 August 1949 (REN 187); 30 May 1948 (REN 284). West Beach, 24 August 1949 (REN 224); 12 August 1950 (REN 419).

Habitat.

Epiphytic on other algae in the upper subtidal zone.

Ptilota hypnoides* Harvey, 1833: 164.References.*

- Harvey, 1833, p. 164; 1853, p. 220.
 Collins, 1913, p. 124.
 Smith, 1944, p. 332.
 Sanborn and Doty, 1947, p. 43.
 Doty, 1947b, p. 189 (as *Plumaria hypnoides*).
 Silva, 1955, p. 13.

Distribution.

- Pacific Coast: Sitka, Alaska, to San Luis Obispo County, California.
 Local: British Columbia: Port Renfrew.

New Records.

- British Columbia: Sandstone Creek, 10 July 1925 (V 1525).

Habitat.

Epiphytic on other algae, especially on species of *Calliarthron* in the lower intertidal zone.

Ptilota pectinata (Gunner) Kjellman, 1889b: 32.*References.*

- Kjellman, 1889b, p. 32.
 Setchell and Gardner, 1903, p. 341.
 Kylin, 1925, p. 60.
 Sanborn and Doty, 1947, p. 42.
 Silva, 1955, p. 13.

Distribution.

- Pacific Coast: Bering Sea to Northern Washington.
 Local: Washington: San Juan I.; Puget Sound; Friday Harbor (UC 96050, 276226).

New Records.

- British Columbia: Muir Creek, 12 April 1925 (V 1523, 1524).

Habitat.

- On rocks in the lower intertidal and upper subtidal zones.

Ptilota tenuis Kylin, 1925: 60.*References.*

- Kylin, 1925, p. 60.
 Doty, 1947b, p. 188 (as *Plumaria tenuis*).
 Rigg and Miller, 1949, p. 331.
 Silva, 1955, p. 13.

Distribution.

- Pacific Coast: Northern British Columbia to Northern Washington.
 Local: Washington: Brown I. (UC 651615); Neah B.; Friday Harbor (UW 67516)

New Records.

- British Columbia: Mazzaredo Is., 26 July 1953 (RFS 600H).

Habitat.

- On rocks in the lower intertidal zone.

Family 2. DELESSERIACEAE

Branchioglossum woodii (J. Agardh) Kylin, 1924: 8.*References.*

- Setchell and Gardner, 1903, p. 323 (as *Erythroglossum woodii*).
 Collins, 1913, p. 119 (as *Erythroglossum woodii*).
 Kylin, 1924, p. 8.
 Smith, 1944, p. 335.
 Dawson, 1944a, p. 321.
 Wagner, 1954, p. 283.

Distribution.

Pacific Coast: Vancouver I., British Columbia, to Mexico.
Local: British Columbia: Vancouver I.

Habitat.

On rocks in the upper subtidal zone.

Membranoptera dimorpha Gardner, 1926: 211.

References.

- Harvey, 1862, p. 170 (as *Pteridium alata* var. *latissima*).
Saunders, 1901b, p. 437 (as *Delesseria alata*).
Setchell and Gardner, 1903, p. 323 (as *Pteridium alatum* and *Schizoneura quercifolia* f. *linearis*).
Collins, 1913, p. 119 (as *Pteridium serratum*, *P. alatum* and *Schizoneura quercifolia*).
Gardner, 1926, p. 211.
Sanborn and Doty, 1947, p. 43.
Doty, 1947b, p. 192.

Distribution.

Pacific Coast: Queen Charlotte Is., British Columbia, to Oregon.

Local: British Columbia: Port Renfrew; Victoria; Esquimalt (UC 68312); Queen Charlotte Is. (UC 197885); Parry B. (UC 284042).

Washington: Neah B.

New Records.

Washington: Waadah I., 7 August 1952 (RFS 133L). N. False B., 26 August 1950 (REN 430).

Habitat.

On rocks and epiphytic on other algae in the lower intertidal and upper subtidal zones.

Membranoptera platyphylla (Setchell and Gardner) Kylin, 1924: 15.

References.

- Setchell and Gardner, 1903, p. 325 (as *Pteridium serratum* f. *platyphyllum*).
Kylin, 1924, p. 15; 1925, p. 64.
Doty, 1947b, p. 192.

Distribution.

Pacific Coast: Southern British Columbia to Oregon.

Local: British Columbia: Esquimalt (UC 68311).

Washington: Pleasant Beach (UC 95853); Friday Harbor (UC 95839); Puget Sound; Point Defiance (UC 266442); Kanaka B. (UC 280023); Peavine Pass (UC 395371); Seattle (UC 266413).

New Records.

Washington: West Beach, 24 August 1949 (REN 14).
Mukkaw B., 21 August 1949 (REN 29). Point Defiance,
May 1910 (UW 64470).

Habitat.

On piling in the lower intertidal zone.

Membranoptera tenuis Kylin, 1924: 16.*References.*

Kylin, 1924, p. 16; 1925, p. 64.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Canoe I. (UC 266443); Peavine Pass;
Friday Harbor (UC 273759); Deer Harbor (UC
95855); Salmon Bank (UC 95856).

New Records.

Washington: Salmon Bank, 24 August 1954 (RFS 201L).
West Beach, 3 September 1949 (REN 387).

Habitat.

On worm tubes and epiphytic on larger algae in the subtidal
zone to a depth of 5 to 10 fathoms.

Membranoptera weeksiae Setchell and Gardner, *in* Gardner, 1926: 209.*References.*

Gardner, 1926, p. 209.

Jao, 1937, p. 112.

Smith, 1944, p. 337.

Dawson, 1945e, p. 82.

Distribution.

Pacific Coast: Northern Washington to San Diego, California.

Local: Washington: Seattle; Crescent B.

Habitat.

On rocks, shells, and worm tubes, and epiphytic on other
algae in the lower intertidal and upper subtidal zones.

Holmesia californica (Dawson) Dawson, 1945c: 96.*References.*

Dawson, 1944c, p. 655 (as *Loranthophycus californicus*);
1945c, p. 96.

Wagner, 1954, p. 301 (as to genus).

Distribution.

Pacific Coast: Northern Washington to San Diego, California.

New Records.

Washington: Salmon Bank, 17 July 1952 (RFS 83L); 12 August 1954 (RFS 187L); 12 August 1954 (RFS 188L). Lopez Pass, 26 June 1952 (RFS 85L); 7 July 1949 (RFS 633, 634). Waadah I., 7 August 1952 (RFS 132L). Parker Reef, 19 July 1949 (RFS 620).

Habitat.

On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Delesseria decipiens J. Agardh, 1872: 58.

References.

Harvey, 1862, p. 170 (as *D. hypoglossum* var. *arborescens*).
Agardh, 1872, p. 58.
Setchell and Gardner, 1903, p. 323 (as *Apoglossum decipiens*).
Collins, 1913, p. 119 (as *Apoglossum decipiens*).
Kylin, 1924, p. 24; 1925, p. 64.
Smith, 1944, p. 338.
Sanborn and Doty, 1947, p. 43.
Doty, 1947b, p. 192.

Distribution.

Pacific Coast: Prince William Sound, Alaska, to Carmel, California.

Local: British Columbia: Juan de Fuca Strait (CAN 98); Ucluelet (UC 277769).

Washington: San Juan I. (UW 70545); Friday Harbor (UC 92554); Whidbey I. (UC 92559, 92553); North B. (UC 278262); Point Defiance (UC 383671); Pleasant Beach (UC 276241).

New Records.

British Columbia: Sandstone Creek, 10 July 1925 (V 1354). Whiffin Spit, 23 August 1950 (REN 434). Kvarno I., 29 July 1909 (CAN 849).

Washington: Dinner I., 3 July 1952 (RFS 28L). Salmon Bank, 3 July 1952 (RFS 26L, 525, 547). W. Obstruction I., 25 June 1952 (RFS 542, 543). Mukkaw B., 30 May 1948 (REN 275). West Beach, 20 June 1951 (REN 599).

Habitat.

On rocks in the upper subtidal zone and to a depth of 5 to 10 fathoms.

Platysiphonia clevelandii (Farlow) Papenfuss, 1944a: 206.

References.

Farlow, 1877, p. 236 (as *Taenioma clevelandii*).
Hollenberg, 1942b, p. 534 (as *Taenioma clevelandii*).
Papenfuss, 1944a, p. 206.
Silva and Cleary, 1954, p. 251.

Distribution.

Pacific Coast: Northern Washington to San Diego, California.

New Records.

Washington: West Beach, 20 June 1951 (REN 593); 24 August 1949 (REN 13).

Habitat.

In the lower intertidal zone.

Erythroglossum intermedium (J. Agardh) Kylin, 1924: 32.*References.*

Agardh, 1872, p. 55.

Kylin, 1924, p. 32.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Vancouver I.; Esquimalt (UC 68292); Victoria (UC 68293).

Habitat.

Probably on rocks in the upper subtidal zone.

Polyneura latissima (Harvey) Kylin, 1924: 37.*References.*

Harvey, 1862, p. 170 (as *Hymenena latissima*).

Setchell and Gardner, 1903, p. 320 (as *Nitophyllum latissimum*).

Collins, 1913, p. 119 (as *Nitophyllum latissimum*).

Kylin, 1924, p. 37; 1925, p. 64.

Smith, 1944, p. 341.

Dawson, 1944d, p. 102.

Sanborn and Doty, 1947, p. 43.

Doty, 1947b, p. 193.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Northern British Columbia to Mexico.

Local: British Columbia: Esquimalt (UC 68310); Gordon Head; Amphitrite Point (UC 277796); Victoria (CAN 22).

Washington: Port Townsend (UC 94752); Neah B.; Whidbey I. (UC 94750); Port Orchard (UC 278263); Friday Harbor (UW 64761; UC 94754); Canoe I. (UW 70536); West Sound (UC 94753).

New Records.

British Columbia: Departure B., 13 August 1908 (CAN 1083); 24 June 1908 (CAN 885). Sidney, 1918 (CAN 8, 25); 1912 (CAN 1115). Brockton Point, 3 May 1949 (RFS 93, 94). Point Holmes, 16 May 1893 (CAN 835). S. James I., 4 August 1949 (RFS 96, 291). Comox, 17 June 1893 (CAN 883). Mazzaredo Is., 26 July 1953 (RFS 617H). Washington: N. False B., 10 June 1949 (RFS 92, 294, 295). Turn I., 3 July 1952 (RFS 69L, 64L, 79L). Cowlitz B., 19 July 1949 (RFS 76, 77, 212, 285, 490). Lopez Pass, 7 July 1949 (RFS 87, 202). Kanaka B., 14 July 1907 (UW 64758). Mummy Rocks, 30 June 1949 (RFS 88, 90, 91, 491). Mackaye Harbor, 30 June 1949 (RFS 89, 492). Crescent B., 25 June 1949 (RFS 296).

Habitat.

On stones and wood in the lower intertidal and subtidal zones to a depth of 5 to 10 fathoms.

Nienburgia borealis (Kylin) Kylin, 1935b: 1.

References.

Kylin, 1924, p. 49 (as *Heteronema boreale*); 1925, p. 64 (as *Heteronema boreale*); 1935b, p. 1.
Sanborn and Doty, 1947, p. 43.
Rigg and Miller, 1949, p. 331 (as *Heteronema boreale*).

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.
Local: Washington: Neah B.; Friday Harbor (UC 276697); Canoe I. (UC 393889); Peavine Pass; Roche Harbor (UC 132909); Point Defiance (UC 276731); West Sound (UC 94714).

New Records.

British Columbia: S. James I., 4 August 1949 (RFS 53, 104). Departure B., 12 August 1908 (CAN 939). Washington: Smith I., 10 July 1952 (RFS 16L). Lopez Pass, 7 July 1949 (RFS 54, 57, 480). Mackaye Harbor, 30 June 1949 (RFS 84). Parker Reef, 19 July 1949 (RFS 102). Cowlitz B., 19 July 1949 (RFS 103). Golden Gardens, 5 August 1949 (REN 383).

Habitat.

On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Polycoryne gardneri Setchell, 1923a: 395.

References.

Setchell, 1923a, p. 395.
Smith, 1944, p. 347.
Wagner, 1954, p. 317.

Distribution.

Pacific Coast: Northern Washington to Pebble Beach, California.

New Records.

Washington: Salmon Bank, 10 July 1952 (RFS 74L). Golden Gardens, 5 August 1949 (REN 34). Lopez Pass, 19 July 1948 (REN 294). West Beach, 24 August 1949 (REN 313).

Habitat.

Parasitic on *Polyneura latissima*.

Myriogramme pulchra Gardner, 1926: 206.*References.*

Gardner, 1926, p. 206.

Distribution.

Pacific Coast: Northern Washington.
Local: Washington: Point Defiance (UW 67462, 64480; UC 402300, 276669).

New Records.

Washington: Golden Gardens, 5 August 1949 (REN 377).

Habitat.

On rocks in the subtidal zone.

Myriogramme spectabilis (Eaton) Kylin, 1924: 58.*References.*

Eaton, 1877, p. 245 (as *Nitophyllum spectabilis*).
Kylin, 1924, p. 58.
Smith, 1944, p. 346.
Dawson, 1953a, p. 158.

Distribution.

Pacific Coast: Northern Washington to Redondo, California.

New Records.

Washington: Paradise Cove, 30 August 1949 (REN 678).

Habitat.

In the lower intertidal and subtidal zones.

Nitophyllum mirabile Kylin, 1925: 64.*References.*

Kylin, 1925, p. 64.
Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.
Local: Washington: Neah B.; Canoe I. (UW 66714; UC 279580); Friday Harbor (UC 264768).

New Records.

British Columbia: S. James I., 4 August 1949 (RFS 190, 280, 300, 364, 481, 482).

Washington: Goose I., 3 July 1952 (RFS 1L). Indian Cove, 31 July 1952 (RFS 111L); 3 August 1954 (RFS 175L). Lopez Pass, 7 July 1949 (RFS 293); 25 June 1952 (RFS 635).

Habitat.

On rocks in the lower intertidal and subtidal zones to a depth of 5 to 10 fathoms.

Hymenena flabelligera (J. Agardh) Kylin, 1924: 83.

References.

Collins, 1913, p. 118 (as *Cryptopleura ruprechtianum*).

Kylin, 1924, p. 83; 1925, p. 67.

Smith, 1944, p. 348.

Sanborn and Doty, 1947, p. 43.

Doty, 1947b, p. 193.

Rigg and Miller, 1949, p. 331.

Wagner, 1954, p. 321.

Distribution.

Pacific Coast: Southern British Columbia to Carmel, California.

Local: British Columbia: Victoria (UC 273872); Departure B. (CAN 810); Point Holmes.

Washington: Neah B.; False B. (UC 638535); Puget Sound (UC 775505); Whidbey I. (UC 651515).

New Records.

British Columbia: Sandstone Creek, 10 July 1925 (V 1332). Victoria, December 1917 (CAN 255).

Washington: American Camp Beach, 5 July 1952 (RFS 12L, 6L, 8L). West Sound, 28 July 1903 (UW 64707). Waadah I., 7 August 1952 (RFS 149L, 150L). False B., 21 July 1949 (RFS 473); 7 August 1952 (RFS 534). West Beach, 24 August 1949 (REN 222). Golden Gardens, 7 August 1949 (REN 84). Mukkaw B., 21 August 1949 (REN 211).

Habitat.

On rocks in the upper subtidal zone.

Hymenena setchellii Gardner, 1927a: 245.

References.

Setchell and Gardner, 1903, p. 320 (in part as *Nitophyllum ruthenicum*).

Kylin, 1924, p. 81 (as *H. fryeana*); 1925, p. 67 (as *H. fryeana*).

References—Concluded

- Gardner, 1927a, p. 245.
 Smith, 1944, p. 350.
 Sanborn and Doty, 1947, p. 43.
 Doty, 1947b, p. 194.

Distribution.

- Pacific Coast: Hope I., British Columbia, to Oregon.
 Local: Washington: Whidbey I. (UC 132765); Peavine Pass;
 Puget Sound.

New Records.

- British Columbia: Sandstone Creek, 10 July 1925 (V 1453).
 Hope I., 11 August 1953 (RFS 704H).
 Washington: Waadah I., 7 August 1952 (RFS 151L, 521).
 West Beach, 3 September 1949 (REN 134).

Habitat.

- On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Cryptopleura ruprechtiana (J. Agardh) Kylin, 1924: 93.*References.*

- Harvey, 1862, p. 170 (as *Hymenena fimbriata*).
 Bailey and Harvey, 1862, p. 161 (as *Hymenena fissa* and
Botryocarpum platycarpum).
 Setchell and Gardner, 1903, p. 321 (as *Nitophyllum ruprechtianum*).
 Collins, 1913, p. 118 (as *Nitophyllum ruprechtianum* and
N. spectabile).
 Kylin, 1924, p. 93; 1925, p. 67.
 Sanborn and Doty, 1947, p. 44.
 Doty, 1947b, p. 195.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Sitka, Alaska, to Northern California.
 Local: British Columbia: Port Renfrew; Esquimalt (UC 94792); Victoria (V 1514; CAN 254, 278, 288, 801);
 Departure B. (CAN 799, 802); Table I. (UC 634029).
 Washington: Neah B.; Port Orchard (UC 278264);
 Whidbey I. (UW 64763; UC 94807); Canoe I.
 (UC 296531); Turn I.; Peavine Pass; Puget Sound;
 Friday Harbor (UC 94808).

New Records.

- British Columbia: Point Holmes, 16 May 1893 (CAN 807),
 Cordova B., 14 February 1925 (V 1358). Spider I.,
 20 July 1945 (RFS 249). S. James I., 4 August 1949
 (RFS 8, 9, 461). Ucluelet, 26 July 1909 (CAN 888).
 Port Neville, 5 September 1946 (RFS 10). Comox,
 1915 (V 1513). Sooke, 1 August 1893 (CAN 1687).

New Records—Concluded

Washington: Smith I., 28 July 1949 (RFS 126, 462). Goose I., 27 May 1949 (RFS 6). Salmon Bank, 3 July 1952 (RFS 37L); 17 July 1952 (RFS 86L, 87L). Turn I., 3 July 1952 (RFS 42L). Lopez Pass, 7 July 1949 (RFS 1, 2, 14, 460). Dungeness, 28 November 1913 (UW 64784). Friday Harbor, July 1903 (UW 64764). Mummy Rocks, 30 June 1949 (RFS 3). False B., 9 July 1949 (RFS 4); 10 June 1949 (RFS 5, 7); 21 July 1949 (RFS 13, 15); 12 June 1949 (RFS 250). Mackaye Harbor, 30 June 1949 (RFS 11). Parker Reef, 19 July 1949 (RFS 12). West Beach, 3 September 1949 (REN 386). Muckaw B., 21 August 1949 (REN 393). Mitchell B., 1928 (UW 70535).

Habitat.

On rocks in the lower intertidal and subtidal zones to a depth of 5 to 10 fathoms.

Cryptopleura violacea* (J. Agardh) Kylin, 1924: 89.References.*

Setchell and Gardner, 1903, p. 321 (as *Nitophyllum violaceum*).
Collins, 1913, p. 119 (as *Nitophyllum violaceum*).
Kylin, 1924, p. 89.
Smith, 1944, p. 352.
Dawson, 1945a, p. 61; 1945d, pp. 63 and 67.
Sanborn and Doty, 1947, p. 44.
Doty, 1947b, p. 196.

Distribution.

Pacific Coast: Southern Vancouver I., British Columbia, to Mexico.
Local: British Columbia: Esquimalt; Departure B. (CAN 360); Port Renfrew (UC 763633).

New Records.

British Columbia: Comox, 1915 (V 1512).

Habitat.

On rocks in the lower intertidal and subtidal zones.

Botryoglossum farlowianum* (J. Agardh) G. DeToni, 1900: 676.References.*

DeToni, 1900, p. 676.
Kylin, 1924, p. 93.
Smith, 1944, p. 354.
Dawson, 1945a, p. 62; 1953a, p. 159.
Sanborn and Doty, 1947, p. 44.
Doty, 1947b, p. 196.
Wagner, 1954, p. 325.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Puget Sound; Whidbey I. (UC 94797).

Habitat.

On rocks in the subtidal zone.

Gonimophyllum skottsbergii Setchell, 1923a: 394.

References.

Setchell, 1923a, p. 394.

Kylin, 1924, p. 96; 1925, p. 68.

Smith, 1944, p. 355.

Dawson, 1945b, p. 25.

Wagner, 1954, p. 338.

Distribution.

Pacific Coast: Northern Washington to San Diego, California.

Local: Washington: False B.; Friday Harbor.

New Records.

Washington: American Camp Beach, 5 July 1952 (RFS 35L).

False B., 12 June 1949 (RFS 284). Smith I., 28 July 1949 (RFS 470). Golden Gardens, 9 August 1949 (REN 65); 7 August 1949 (REN 85); 24 August 1949 (REN 223).

Habitat.

Epiphytic on species of *Hymenena*, *Cryptopleura* and *Botryoglossum*.

Family 3. DASYACEAE

Dasyopsis plumosa (Harvey and Bailey) Schmitz, 1893: 231.

References.

Harvey and Bailey, 1851, p. 371 (as *Dasya plumosa*).

Harvey, 1853, p. 66 (as *Dasya plumosa*).

Bailey and Harvey, 1862, p. 160 (as *Dasya plumosa*).

Schmitz, 1893, p. 231.

Setchell and Gardner, 1903, p. 337.

Collins, 1913, p. 123.

Kylin, 1925, p. 68.

Connell, 1928, p. 100.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Queen Charlotte Sound, British Columbia, to Northern California.

Distribution—Concluded

Local: British Columbia: Queen Charlotte Sound; Comox (CAN 1068); Qualicum B.; Departure B.; Page Lagoon; Ucluelet (CAN 97, 1590, 837); Amphitrite Point (UC 277404).

Washington: Neah B.; Friday Harbor (UW 63978, 64624; UC 93302); Canoe I.; Whidbey I. (UC 777347); Puget Sound; Port Townsend (UC 93305).

New Records.

British Columbia: Mayne I., 1914 (V 1356). Beacon Hill, 2 June 1908 (CAN 201).

Washington: Iceberg Point, 30 June 1949 (RFS 464). False B., 21 July 1949 (RFS 463). Eagle Point, 3 July 1952 (RFS 30L, 24L). Salmon Bank, 17 July 1952 (RFS 88L). Lopez Pass, 31 July 1952 (RFS 121L); 7 July 1949 (RFS 97, 113). Parker Reef, 19 July 1949 (RFS 78). Crescent B., 25 June 1949 (RFS 83). Deer Harbor, 30 June 1904 (UW 64467, 64631, 64642). Mackaye Harbor, 30 June 1949 (RFS 98). Mummy Rocks, 30 June 1949 (RFS 105). West Beach, 24 August 1949 (REN 19); 12 August 1950 (REN 416, 633); 20 June 1951 (REN 602).

Habitat.

On wood and stones in the subtidal zone to a depth of 5 to 10 fathoms.

Heterosiphonia densiuscula* Kylin, 1925: 70.References.*

Kylin, 1925, p. 70.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Friday Harbor; Turn I. (UC 170599).

New Records.

Washington: Eagle Point, 3 July 1952 (RFS 10L). Salmon Bank, 10 July 1952 (RFS 2L). Mosquito Pass, 12 July 1948 (REN 272). West Beach, 20 June 1951 (REN 596).

Habitat.

On piling, rocks, and shells in the subtidal zone to a depth of 5 to 10 fathoms.

Heterosiphonia laxa* Kylin, 1925: 70.References.*

Kylin, 1925, p. 70.

Distribution.

Pacific Coast: Southern British Columbia to Northern Washington.

Local: British Columbia: Vancouver I. (UC 266486).

Washington: Friday Harbor (UC 392811); Canoe I.

New Records.

Washington: Mosquito Pass, 12 July 1948 (REN 309).

Habitat.

On piling, rocks, and shells in the subtidal zone to a depth of 5 to 10 fathoms.

Family 4. RHODOMELACEAE

Polysiphonia collinsii* Hollenberg var. *collinsii*, 1944: 481.References.*

Hollenberg, 1944, p. 481 (as *P. collinsii*).

Smith, 1944, p. 363 (as *P. collinsii*).

Dawson, 1945d, pp. 63 and 67; 1951, p. 53 (as *P. collinsii*).

Sanborn and Doty, 1947, p. 44 (as *P. collinsii*).

Doty, 1947b, p. 197 (as *P. collinsii*).

Distribution.

Pacific Coast: Vancouver I., British Columbia, to Mexico.

Local: British Columbia: Vancouver I.; Departure B. (UC 266477).

Washington: San Juan County (UC 95886); Neah B. (UC 276197); Cape Flattery; Cattle Point (UC 274019); False B. (UC 276118).

New Records.

British Columbia: Hope I., 11 August 1953 (RFS 611 H).

Washington: West Beach, 3 September 1949 (REN 1).

Seattle, 7 August 1949 (REN 20, 80).

Habitat.

On rocks and epiphytic on coralline algae in the middle intertidal zone.

Polysiphonia collinsii* var. *deliquesens* Hollenberg, 1944: 482.References.*

Hollenberg, 1944, p. 482.

Distribution.

Pacific Coast: Prince William Sound, Alaska, to Northern Washington.

Local: British Columbia: Vancouver I.

Washington: Henry I. (UW 64775b); Friday Harbor.

New Records.

Washington: Lincoln Park, 8 August 1949 (REN 96).

Habitat.

On rocks in the intertidal zone.

Polysiphonia collinsii* var. *luxurians* Hollenberg, 1944: 482.References.*

Hollenberg, 1944, p. 482.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Cape Flattery; Friday Harbor.

Habitat.

On rocks in tidepools in the middle intertidal zone.

Polysiphonia macounii* Hollenberg, 1942a: 780.References.*

Collins, 1913, p. 120 (as *P. subulata*).

Connell, 1928, p. 100 (as *P. subulata*).

Hollenberg, 1942a, p. 780.

Distribution.

Pacific Coast: Southern British Columbia.

Local: British Columbia: Amphitrite Point (UC 277782);
Victoria; Qualicum B.; Page Lagoon; Departure B.
(UC 266478).

Habitat.

On rocks in the lower intertidal zone.

Polysiphonia pacifica* var. *determinata* Hollenberg, 1942a: 778.References.*

Hollenberg, 1942a, p. 778.

Smith, 1944, p. 360.

Distribution.

Pacific Coast: Alaska to Central California.

Local: British Columbia: Vancouver I.

Washington: Cape Flattery; Cattle Point (UC 314865).

Habitat.

On rocks in the intertidal zone.

Polysiphonia pacifica* var. *distans* Hollenberg, 1942a: 779.References.*

Hollenberg, 1942a, p. 779.

Smith, 1944, p. 360.

Distribution.

Pacific Coast: Southern British Columbia to Santa Cruz, California.

Local: British Columbia: Departure B.; Port Renfrew.

Washington: Whidbey I. (UC 95305).

New Records.

Washington: Parker Reef, 5 August 1954 (RFS 179L, 180L).

Habitat.

On rocks in the intertidal zone.

Polysiphonia pacifica var. **disticha** Hollenberg, 1942a: 778.*References.*

Hollenberg, 1942a, p. 778.

Distribution.

Pacific Coast: Southern British Columbia to Central California.

Local: British Columbia: Vancouver I.; Amphitrite Point (UC 277784).

Washington: Cape Flattery; Neah B. (UC 314943).

New Records.

Washington: West Beach, 20 June 1951 (REN 606).

Habitat.

On rocks in the upper intertidal zone.

Polysiphonia pacifica var. **gracilis** Hollenberg, 1942a: 778.*References.*

Hollenberg, 1942a, p. 778.

Dawson, 1946, p. 110.

Distribution.

Pacific Coast: Southern British Columbia to Central California.

Local: British Columbia: Southern British Columbia.

Washington: Deer Harbor; Turn Rock.

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Polysiphonia pacifica Hollenberg var. **pacifica**, 1942a: 777.*References.*

Hollenberg, 1942a, p. 777 (as *P. pacifica*).

Smith, 1944, p. 359 (as *P. pacifica*).

Sanborn and Doty, 1947, p. 45 (as *P. pacifica*).

Doty, 1947b, p. 198 (as *P. pacifica*).

Distribution.

Pacific Coast: Sitka, Alaska, to Mexico.

Local: British Columbia: Ucluelet (UC 277785); Amphitrite Point (UC 277786); Departure B. (UC 392843).

Washington: Point Roberts (UC 68316).

New Records.

Washington: West Beach, 3 September 1949 (REN 2).
Turn I., July 1915 (UW 64171). Turn Rock, 3 August 1940 (UW 63767).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Polysiphonia paniculata Montagne, 1842: 254.

References.

Montagne, 1842, p. 254.

Harvey, 1853, p. 48 (as *P. californica*); 1862, p. 168 (as *P. atrorubescens*, *P. atrorubescens* var. *minor* and *P. californica*).

Setchell and Gardner, 1903, p. 327 (as *P. californica*), p. 326 (as *P. atrorubescens* and *P. atrorubescens* f. *minor*).

Collins, 1913, p. 120 (as *P. tenuistriata*).

Kylin, 1925, p. 71 (as *P. tenuistriata*).

Connell, 1928, p. 100 (as *P. nigrescens* var. *affinis*).

Hollenberg, 1944, p. 480.

Smith, 1944, p. 362 (as *P. californica*).

Dawson, 1944a, p. 332.

Doty, 1947b, p. 197.

Distribution.

Pacific Coast: Southern British Columbia to Mexico.

Local: British Columbia: Point Holmes (UC 90944); Departure B.; Esquimalt (UC 68286); Victoria (UC 296685); Amphitrite Point (UC 277776).

Washington: San Juan I. (UW 64172; UC 763626); Whidbey I. (UC 95188); Tracyton; Pleasant Beach (UC 95187); Orcas I. (UC 68315); Argyle (UC 276703); Point Defiance (UC 383678); Cattle Point (UC 314964); Roche Harbor (UC 132862).

New Records.

British Columbia: Sidney, 1917 (V 1516, 1517).

Washington: Golden Gardens, 5 August 1949 (REN 16).
Henry I., July 1907 (UW 64775a). Argyle, July 1911 (UW 67535).

Habitat.

On rocks and wood, or epiphytic on other algae in the lower intertidal and upper subtidal zones.

Polysiphonia senticulosa Harvey, 1862: 169.*References.*

- Harvey, 1862, p. 169.
 Setchell and Gardner, 1903, p. 327.
 Collins, 1913, p. 119 (as *P. urceolata* var. *senticulosa*).
 Kylin, 1925, p. 71; 1941, p. 35 (as *Orcasia senticulosa*).
 Rigg and Miller, 1949, p. 331.
 Segi, 1951, p. 247.

Distribution.

- Pacific Coast: Southern British Columbia to Monterey, California.
 Local: British Columbia: Esquimalt; Qualicum B.; Victoria.
 Washington: Neah B.; Orcas I.

Habitat.

- Probably on rocks in the lower intertidal zone.

Polysiphonia snyderae var. **heteromorpha** Hollenberg, 1942a: 784.*References.*

- Hollenberg, 1942a, p. 784.

Distribution.

- Pacific Coast: Southern British Columbia to Northern Washington.
 Local: British Columbia: Southern Vancouver I.
 Washington: Cape Flattery.

Habitat.

- On rocks in tide pools in the middle intertidal zone.

Polysiphonia snyderae Kylin var. **snyderae**, 1941: 35.*References.*

- Kylin, 1941, p. 35 (as *P. snyderae*).
 Hollenberg, 1942a, p. 784 (as *P. snyderae*).
 Dawson, 1944a, p. 330 (as *P. snyderae*).
 Doty, 1947b, p. 198 (as *P. snyderae*).

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Vancouver I. (UC 277454).
 Washington: Northern Washington; Bellingham (UC 266247).

Habitat.

- On rocks, wood, shells, or epiphytic on other algae in the lower intertidal zone.

Polysiphonia urceolata (Dillwyn) Greville f. **urceolata**, 1824: 309.*References.*

- Greville, 1824, p. 309 (as *P. u. f. typica*).
 Harvey, 1862, p. 168 (as *P. u. f. typica*).
 Kjellman, 1883, p. 118.
 Setchell and Gardner, 1903, p. 326 (as *P. urceolata*).
 Collins, 1913, p. 119 (as *P. urceolata*).
 Kylin, 1925, p. 71 (as *P. urceolata*).
 Connell, 1928, p. 100 (as *P. urceolata*).
 Hollenberg, 1942a, p. 774 (as *P. pungens*).
 Rigg and Miller, 1949, p. 331 (as *P. u. f. typica*).
 Segi, 1951, p. 241 (as *P. u. f. typica*).

Distribution.

- Pacific Coast: Alaska to Northern Washington.
 Local: British Columbia: Qualicum B. (UC 90940); Port
 Renfrew; Southern Vancouver I. (UC 276575);
 Esquimalt.
 Washington: Friday Harbor; Neah B.; Point Roberts;
 Whidbey I.; Channel Rocks.

Habitat.

On rock and wood in the lower intertidal zone.

Lophosiphonia obscura (C. Agardh) Falkenberg, 1901: 500.*References.*

- Falkenberg, 1901, p. 500.
 Setchell and Gardner, 1903, p. 329.
 Collins, 1913, p. 122.
 Kylin, 1925, p. 75.

Distribution.

- Pacific Coast: Southern British Columbia to Northern
 Washington.
 Local: British Columbia: Departure B.
 Washington: Friday Harbor (UC 763627).

Habitat.

On rocks in the intertidal zone.

Lophosiphonia villum (J. Agardh) Setchell and Gardner, 1903: 329.*References.*

- Setchell and Gardner, 1903, p. 329.
 Collins, 1913, p. 121.
 Kylin, 1941, p. 40.
 Smith, 1944, p. 364.
 Dawson, 1944a, p. 332.
 Taylor, 1945, p. 304.

Distribution.

Pacific Coast: Southern British Columbia to Costa Rica.
Local: British Columbia: Departure B. (CAN 1131).

Habitat.

On rocks in the middle intertidal zone.

Pterosiphonia arctica Setchell and Gardner, 1903: 329.

References.

Setchell and Gardner, 1903, p. 329.
Muenscher, 1915b, p. 78; 1916, p. 208.
Kylin, 1925, p. 72.

Distribution.

Pacific Coast: Alaska to Northern Washington.
Local: Washington: Whidbey I. (UW 67534; UC 95858); San Juan I.; Shaw I.; Friday Harbor (UC 276700).

Habitat.

Epiphytic on larger algae in the upper subtidal zone.

Pterosiphonia bipinnata (Postels and Ruprecht) Falkenberg var. **bipinnata**, 1901: 273.

References.

Harvey, 1862, p. 168 (as *Polysiphonia californica* var. *plumigera*).
Falkenberg, 1901, p. 273 (as *P. bipinnata*).
Saunders, 1901b, p. 438 (as *Polysiphonia bipinnata*).
Setchell and Gardner, 1903, p. 327 (as *Polysiphonia californica* var. *plumigera*), p. 328 (as *P. bipinnata*).
Collins, 1913, p. 120 (as *P. bipinnata*).
Kylin, 1925, p. 72 (as *P. bipinnata*).
Connell, 1928, p. 100 (as *P. bipinnata*).
Smith, 1944, p. 366 (as *P. bipinnata*).
Sanborn and Doty, 1947, p. 45 (as *P. bipinnata*).
Doty, 1947b, p. 198 (as *P. bipinnata*).

Distribution.

Pacific Coast: Shumagin Is., Alaska, to San Pedro, California.
Local: British Columbia: Port Renfrew (UC 111775); Departure B. (CAN 916); Comox (CAN 359; 1051); Victoria (CAN 147, 222, 917, 1048; UC 776002); Gordon Head (CAN 918); Amphitrite Point (UC 277779); Point Holmes (UC 90946); Esquimalt (UC 68285).
Washington: San Juan I. (UW 64782); Brown I.; Turn Rock; Whidbey I. (UW 64162, 64773; UC 314864); Point Roberts; Puget Sound; Minnesota Reef (UC 763629); Kanaka B. (UC 277610); Friday Harbor (UC 277615); Roche Harbor (UC 277617); Tracyton (UC 278261).

New Records.

British Columbia: Sidney, 1917 (V 1413, 1414); 1913 (CAN 223, 215, 281).

Washington: Turn I., July 1915 (UW 64177). Argyle, July 1911 (UW 67536). Mukkaw B., 30 May 1948 (REN 277). Ballard Beach, 10 April 1904 (UW 63788). Kanaka B., 25 July 1907 (UW 64781). Henry I., July 1907 (UW 64783).

Habitat.

On rocks and epiphytic on other algae in the intertidal and upper subtidal zones.

Pterosiphonia bipinnata* var. *robusta* (Gardner) Doty, 1947b: 198.References.*

Gardner, 1927e, p. 102.

Doty, 1947b, p. 198.

Distribution.

Pacific Coast: Southern British Columbia to San Francisco, California.

Local: British Columbia: Departure B. (UC 273732).

Washington: Neah B. (UC 377878); Kanaka B. (UC 382633).

Habitat.

On rocks in the lower intertidal zone.

Pterosiphonia dendroidea* (Montagne) Falkenberg, 1901: 268.References.*

Harvey, 1862, p. 168 (as *Polysiphonia dendroidea*).

Falkenberg, 1901, p. 268.

Setchell and Gardner, 1903, p. 328.

Collins, 1913, p. 121 (as *P. parasitica* f. *luxurians*).

Kylin, 1925, p. 72.

Smith, 1944, p. 366.

Dawson, 1944a, p. 335; 1944d, p. 102; 1945d, pp. 63 and 67; 1951, p. 53.

Taylor, 1945, p. 304.

Sanborn and Doty, 1947, p. 45.

Doty, 1947b, p. 198.

Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Northern British Columbia to Mexico.

Local: British Columbia: Esquimalt; Victoria (UC 90749); Comox (UC 90951).

Distribution—Concluded

Washington: Friday Harbor (UC 132879); Canoe I.; Peavine Pass (UC 284039); Whidbey I. (UC 95922); Neah B.; Griffin B. (UC 276239); Kanaka B. (UC 276702); West Sound (UC 95950).

New Records.

British Columbia: Cordova B., 14 February 1925 (V 1411, 1412). S. James I., 4 August 1949 (RFS 497). Mazza-redo Is., 26 July 1953 (RFS 481H).

Washington: Smith I., 10 July 1952 (RFS 78L). Waldron I., 15 July 1904 (UW 64544). Salmon Bank, 10 July 1952 (RFS 68L, 75L); 12 July 1948 (REN 291); (UW 64543a). Mackaye Harbor, 30 June 1949 (RFS 261). Mummy Rocks, 30 June 1949 (RFS 262). West Beach, 24 August 1949 (REN 10); 20 June 1951 (REN 603). Lincoln Park, 8 August 1949 (REN 103).

Habitat.

On rocks and epiphytic on other algae in the lower intertidal and subtidal zones to a depth of 5 to 10 fathoms.

Pterosiphonia gracilis* Kylin, 1925: 72.References.*

Collins, 1913, p. 73 (as *P. parasitica* f. *borealis*).
Kylin, 1925, p. 72.
Connell, 1928, p. 100 (as *P. parasitica*).
Sanborn and Doty, 1947, p. 45.
Doty, 1947b, p. 198.

Distribution.

Pacific Coast: Southern British Columbia to Oregon.

Local: British Columbia: Page Lagoon; Departure B. (UC 266480); Esquimalt; Victoria; Comox.

Washington: Friday Harbor (UC 279576).

New Records.

Washington: West Beach, 20 June 1951 (REN 598).

Habitat.

On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Pterochondria woodii* (Harvey) Hollenberg, 1942b: 533.References.*

Setchell and Gardner, 1903, p. 329 (as *Pterosiphonia woodii*).
Collins, 1913, p. 121 (as *Pterosiphonia woodii*).
Kylin, 1925, p. 72 (as *Pterosiphonia woodii*).
Hollenberg, 1942b, p. 533.

References—Concluded

- Smith, 1944, p. 368.
 Dawson, 1945d, p. 63.
 Sanborn and Doty, 1947, p. 45.
 Doty, 1947b, p. 199.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Port Renfrew (UC 95975); Ucluelet (CAN 95).
 Washington: Whidbey I. (UC 95968).

New Records.

- Washington: Salmon Bank, 10 July 1952 (RFS 60L). Smith I., 28 July 1949 (RFS 225, 227, 406, 498, 499). West Beach, 3 September 1949 (REN 115). Muckaw B., 21 August 1949 (REN 198).

Habitat.

- On rocks and epiphytic on other algae in the lower intertidal and subtidal zones to a depth of 5 to 10 fathoms.

Herposiphonia grandis* Kylin, 1925: 74.References.*

- Collins, 1913, p. 120 (as *Pterosiphonia plumula*).
 Kylin, 1925, p. 74.
 Sanborn and Doty, 1947, p. 45.

Distribution.

- Pacific Coast: Southern British Columbia to Oregon.
 Local: British Columbia: Victoria (UC 651574).
 Washington: Friday Harbor (UW 63832; UC 402253, 279577); Canoe I.; Peavine Pass (UC 791968); West Sound (UC 95360); Roche Harbor (UC 132867); Whidbey I. (UC 95949).

New Records.

- British Columbia: S. James I., 4 August 1949 (RFS 472).
 Washington: Whidbey I. (UW 63834). Dinner I., 3 July 1952 (RFS 5L). Indian Cove, 31 July 1952 (RFS 112L). Mackaye Harbor, 30 June 1949 (RFS 272, 275). N. False B., 10 June 1949 (RFS 276); 12 July 1948 (REN 296). Mosquito Pass, 12 July 1948 (REN 248). West Beach, 20 June 1951 (REN 597).

Habitat.

- On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Herposiphonia parva Hollenberg, 1943: 575.*References.*

- Hollenberg, 1943, p. 575.
 Smith, 1944, p. 369 (as *H. pygmaea*).
 Doty, 1947b, p. 199.
 Dawson, 1951, p. 53.

Distribution.

Pacific Coast: Northern Washington to Mexico.

New Records.

- Washington: Smith I., 26 July 1948 (REN 305). Mukkaw B.,
 21 August 1949 (REN 205).

Habitat.

Epiphytic on coralline algae, especially species of *Calliarthron*
 and *Bossiella* in the subtidal zone.

Herposiphonia rigida Gardner, 1927e: 100.*References.*

- Gardner, 1927e, p. 100.
 Smith, 1944, p. 369.
 Doty, 1947b, p. 199.

Distribution.

- Pacific Coast: Southern British Columbia to Santa Monica,
 California.
 Local: British Columbia: Vancouver I. (UC 266481).
 Washington: Friday Harbor (UW 63833; UC 276868);
 Puget Sound.

Habitat.

On rocks in the subtidal zone.

Amplisiphonia pacifica Hollenberg, 1939: 380.*References.*

- Hollenberg, 1939, p. 380.
 Smith, 1944, p. 372.
 Dawson, 1945b, p. 25.
 Doty, 1947b, p. 199.
 Scagel, 1953, p. 39.

Distribution.

- Pacific Coast: Northern British Columbia to Mexico.
 Local: British Columbia: Whiffin Spit.
 Washington: Turn Point.

New Records.

British Columbia: Mazzaredo Is., 26 July 1953 (RFS 480H).
 Washington: Hein Bank (on *Pterygophora*), 10 August 1954
 (RFS 185L). Turn I., 3 July 1952 (RFS 54).

Habitat.

On rocks and epiphytic on other algae, particularly the
 holdfasts of members of the Laminariales in the sub-
 tidal zone to a depth of 5 to 10 fathoms.

Laurencia[*spectabilis* Postels and Ruprecht, 1840: 16.

References.

- Postels and Ruprecht, 1840, p. 16.
 Harvey, 1862, p. 169 (as *L. pinnatifida*).
 Setchell and Gardner, 1903, p. 326 (as *L. pinnatifida*).
 Collins, 1913, p. 120 (as *L. pinnatifida*).
 Kylin, 1925, p. 77.
 Connell, 1928, p. 100 (as *L. pinnatifida*).
 Smith, 1944, p. 377.
 Dawson, 1944b, p. 238.
 Sanborn and Doty, 1947, p. 46.
 Doty, 1947b, p. 199.
 Rigg and Miller, 1949, p. 331.

Distribution.

Pacific Coast: Sitka, Alaska, to San Diego, California.
 Local: British Columbia: Ucluelet (CAN 972, 1016); Amphitrite Point (UC 277403); Departure B. (CAN 905, 316); Horswell Channel; Victoria (V 1330, 1331; CAN 96, 965, 970, 1105); Port Renfrew (UC 763632); Esquimalt (UC 68345).
 Washington: Neah B.; Whidbey I. (UC 651495); False B.

New Records.

British Columbia: Sandstone Creek, 10 July 1925 (V 1329)
 Sooke, 30 December 1947 (RFS 412). Mayne I., 1914
 CAN 386).
 Washington: Smith I., 10 July 1952 (RFS 17L). Parker
 Reef, 19 July 1949 (RFS 246). N. False B., 10 June 1949
 (RFS 247); 9 July 1949 (RFS 273, 477); 28 July 1949
 (RFS 476). West Beach, 3 September 1949 (REN 131);
 24 August 1949 (REN 214). Mukkaw B., 30 May 1948
 (REN 282); 21 August 1949 (REN 410). Dungeness,
 28 November 1913 (UW 64628, 64785).

Habitat.

On rocks in the lower intertidal and upper subtidal zones.

Janczewskia gardneri Setchell and Guernsey, *in* Setchell, 1914a: 12.

References.

- Setchell and Gardner, 1903, p. 326 (as *J. verrucaeformis*).
 Collins, 1913, p. 120 (as *J. verrucaeformis*).
 Setchell, 1914a, p. 12.
 Kylin, 1925, p. 77.
 Smith, 1944, p. 381.
 Dawson, 1945a, p. 68; 1945d, pp. 63 and 67.
 Doty, 1947b, p. 199.

Distribution.

- Pacific Coast: Southern British Columbia to Mexico.
 Local: British Columbia: Victoria (UC 160752).
 Washington: Whidbey I. (UC 132801).

New Records.

- Washington: Waadah I., 7 August 1952 (RFS 155L). False B., 9 July 1949 (RFS 274). West Beach, 3 September 1949 (REN 132); 24 August 1949 (REN 215). Mukkaw B., 21 August 1949 (REN 391).

Habitat.

- Parasitic on *Laurencia spectabilis*.

Rhodomela larix (Turner) C. Agardh, 1822: 376.

References.

- Agardh, 1822, p. 376.
 Harvey, 1853, p. 24; 1862, p. 168.
 Bailey and Harvey, 1862, p. 160.
 Saunders, 1901b, p. 438.
 Setchell and Gardner, 1903, p. 330.
 Collins, 1913, p. 122.
 Kylin, 1925, p. 75.
 Connell, 1928, p. 100.
 Smith, 1944, p. 374.
 Sanborn and Doty, 1947, p. 45.
 Doty, 1947b, p. 196.
 Rigg and Miller, 1949, p. 331.

Distribution.

- Pacific Coast: Bering Sea to San Luis Obispo County, California.
 Local: British Columbia: Esquimalt; Port Renfrew; Nootka Sound (UC 463977); Ucluelet (UC 277771); Horswell Channel; Amphitrite Point (CAN 1683).
 Washington: Neah B.; Point Roberts; Whidbey I. (UW 64164; UC 96129); San Juan I. (UW 64641); Puget Sound; Minnesota Reef (UC 278260, 763547).

New Records.

British Columbia: Comox, 1915 (V 1409; CAN 47). Victoria, 6 April 1918 (CAN 3, 1682). Ucluelet, 1909 (CAN 94, 144, 340). White Rock, October 1933 (RFS 248). Whiffin Spit, 30 December 1949 (RFS 303, 1019L). Departure B., 13 July 1887 (V 1410; CAN 960). Mayne I., June 1914 (V 1408; CAN 267). Queen Charlotte Is., 1911 (CAN 372). Point Holmes, 17 June 1893 (CAN 1070). Washington: Crescent B., 25 June 1949 (RFS 264). Minnesota Reef, 28 May 1949 (RFS 265, 267). Point Caution, 25 May 1949 (RFS 266). False B., 9 July 1949 (RFS 502). Ballard Beach, 10 April 1904 (UW 64787). Henry I., 1922 (UW 64789).

Habitat.

On rocks in the intertidal zone.

Rhodomela lycopodioides (Linnaeus) C. Agardh, 1822: 377.

References.

Agardh, 1822, p. 377.
 Setchell and Gardner, 1903, p. 332 (as *R. l. f. tenuissima*).
 Collins, 1913, p. 122 (as *R. l. f. tenuissima*).
 Dawson, 1946, p. 116.

Distribution.

Pacific Coast: Alaska to Northern Washington.
 Local: British Columbia: Port Renfrew; Victoria; Cape Lazo.
 Washington: Henry I. (UC 132859).

New Records.

Washington: Point Caution, 25 May 1949 (RFS 235, 260).

Habitat.

On rocks in the intertidal zone.

Odonthalia floccosa (Esper) Falkenberg, 1901: 607.

References.

Harvey, 1853, p. 25 (as *Rhodomela floccosa*); 1862, p. 168 (as *Rhodomela floccosa*).
 Saunders, 1901b, p. 438 (as *Rhodomela floccosa* and in part as *O. aleutica*).
 Falkenberg, 1901, p. 607.
 Setchell and Gardner, 1903, p. 333 (also as *O. f. f. typica* and *O. aleutica*), p. 334 (as *O. f. f. comosa*), p. 335 (as *O. f. f. macrantha*).
 Collins, 1913, p. 122 (also as *O. f. f. comosa*, *O. f. f. macrantha* and *O. aleutica*).
 Kylin, 1925, p. 75.
 Connell, 1928, p. 100 (in part as *O. aleutica*).

References—Concluded

- Smith, 1944, p. 375.
 Sanborn and Doty, 1947, p. 46.
 Doty, 1947b, p. 197.
 Rigg and Miller, 1949, p. 331.
 Silva, 1953, p. 224.

Distribution.

Pacific Coast: Southern British Columbia to Santa Barbara, California.

Local: British Columbia: Departure B. (CAN 145, 358, 384, 899, 901, 915, 957, 1084, 870, 893, 1697, 1085); Amphitrite Point (UC 277773); Qualicum B. (UC 90947); Esquimalt (UC 94878); Port Renfrew; Juan de Fuca Strait; Quatsino Sound (UC 464008); Victoria (CAN 237, 245, 273, 283, 369, 389, 391, 900, 1129, 1693-4, 852-3; UC 763625); Ucluelet (UC 464008).

Washington: Neah B.; San Juan I. (UW 64805, 64565; UC 638541); Whidbey I. (UW 67465-6; UC 94872); Point Roberts; False B.; Brown I.; Puget Sound; Minnesota Reef (UC 763624); Cattle Point (UC 377889).

New Records.

British Columbia: Amphitrite Point, 20 May 1909 (CAN 1696). Muir Creek, 12 August 1925 (V 1448). Spider I., 20 July 1945 (RFS 242). Sooke, 1 June 1893 (CAN 867). False Narrows, 9 May 1944 (RFS 243). Point Holmes, 18 June 1893 (CAN 894, 959, 1130). Brockton Point, 3 May 1949 (RFS 371). Qualicum B., 24 July 1887 (CAN 1692). N. Deer I., 5 July 1947 (RFS 375). Comox, July 1915 (V 1444; CAN 238, 258). Sidney, 1913 (V 1445, 1447; CAN 362, 388, 390, 811); 3 May 1918 (CAN 247); 1917 (CAN 290). Mayne I., 1914 (V 1446; CAN 373); 1917 (CAN 284). Sandstone Creek, 10 August 1925 (V 1450).

Washington: American Camp Beach, 5 July 1952 (RFS 66L, 81L). Smith I., 28 July 1949 (RFS 224, 228). Goose I., 27 May 1949 (RFS 231). False B., 29 May 1949 (RFS 232, 234); 12 June 1949 (RFS 372-374, 377); 10 June 1949 (RFS 376). Minnesota Reef, 28 May 1949 (RFS 233). Turn I., 28 May 1949 (RFS 378). Lincoln Park, 8 August 1949 (REN 102). Mukkaw B., 21 August 1949 (REN 186). West Beach, 24 August 1949 (REN 226).

Habitat.

On rocks in the intertidal zone.

Odonthalia kamtschatica (Ruprecht) J. Agardh, 1863: 896.*References.*

- Agardh, 1863, p. 896.
 Setchell and Gardner, 1903, p. 336; p. 337 (as *O. dentata*).
 Collins, 1913, p. 122.
 Kylin, 1925, p. 76.

Distribution.

- Pacific Coast: Alaska to Northern Washington.
 Local: British Columbia: Port Renfrew (UC 94931); Victoria (CAN 334, 338, 862); Esquimalt; Vancouver I.
 Washington: Port Angeles; False B.; Puget Sound.

New Records.

- British Columbia: Cordova B., 14 February 1925 (V 1449).
 Barkley Sound, 8 August 1887 (CAN 855). Cape Lazo, 18 June 1893 (CAN 877).
 Washington: S. False B., 12 June 1949 (RFS 292, 403).
 West Beach, 3 September 1949 (REN 385); 12 August 1950 (REN 417).

Habitat.

- On rocks in the lower intertidal zone.

Odonthalia lyallii (Harvey) J. Agardh, 1863: 894.*References.*

- Harvey, 1862, p. 168 (as *Rhodomela lyallii*).
 Agardh, 1863, p. 894.
 Setchell and Gardner, 1903, p. 335.
 Collins, 1913, p. 122.
 Kylin, 1925, p. 76.
 Sanborn and Doty, 1947, p. 46.

Distribution.

- Pacific Coast: Southern British Columbia to Oregon.
 Local: British Columbia: Victoria (CAN 255, 890, 781; UC 277810); Cape Lazo; Juan de Fuca Strait; Esquimalt (UC 68308).
 Washington: Turn I.; Whidbey I. (UW 64688; UC 94933); San Juan I.; Puget Sound; Port Townsend (UC 94929); Friday Harbor (UC 276690).

Habitat.

- On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Odonthalia washingtoniensis* Kylin, 1925: 76.References.*

- Farlow, 1886, p. 470 (as *O. dentata*).
 Setchell and Gardner, 1903, p. 336 (as *O. semicostata*).
 Collins, 1913, p. 122 (as *O. semicostata*).
 Kylin, 1925, p. 76.
 Sanborn and Doty, 1947, p. 46.
 Doty, 1947b, p. 197.
 Rigg and Miller, 1949, p. 331 (as *O. dentata*).

Distribution.

- Pacific Coast: Hope I., British Columbia, to Oregon.
 Local: British Columbia: Victoria (CAN 377; UC 763623).
 Washington: Whidbey I. (UW 138794; UC 800601);
 Cattle Point; Neah B.; Kanaka B. (UC 276692).

New Records.

- British Columbia: Departure B., 13 July 1887 (CAN 224).
 Klucksiwi R., 14 July 1946 (RFS 301). N. Deer I., 28
 August 1947 (RFS 862).
 Washington: Goose I., 27 May 1949 (RFS 302). Smith I.,
 28 July 1949 (RFS 483). West Beach, 3 September 1949
 (REN 108); 24 August 1949 (REN 231); 12 August 1950
 (REN 418). Kanaka B., 25 July 1904 (UW 64765).

Habitat.

- On rocks in the subtidal zone to a depth of 5 to 10 fathoms.

Phylum 4. **CHRYSOPHYCOPHYTA**Class 1. **XANTHOPHYCEAE**
(YELLOW GREEN ALGAE)Order 1. **VAUCHERIALES**Family 1. **PHYLLOSIPHONACEAE****Ostreobium quekettii** Bornet and Flahault, 1889: 163.*References.*

Bornet and Flahault, 1889, p. 163.

Collins, 1909b, p. 408.

Jao, 1937, p. 106.

Taylor, 1945, p. 76.

Dawson, 1946, p. 17.

Distribution.

Pacific Coast: Northern Washington to Mexico.

Local: Washington: Canoe I.; San Juan I.; Whidbey I.; Port Angeles; Port Townsend; Port Orchard.

Habitat.

In various empty shells in the subtidal zone at a depth of 5 to 10 fathoms.

Family 2. **VAUCHERIACEAE****Vaucheria litoria** Bang and C. Agardh, *in* Agardh, 1821: 463.*References.*

Agardh, 1821, p. 463.

Collins, 1909b, p. 430.

Jao, 1937, p. 108.

Distribution.

Pacific Coast: Northern Washington.

Local: Washington: Argyle Lagoon.

New Records.

Washington: Jeckyll Lagoon, 27 July 1954 (RFS 167L).

Habitat.

In the lower intertidal zone on muddy bottom.

APPENDIX OF PLACE NAMES

ALASKA:

- Agattu Island.* One of the westernmost islands in the Aleutian Islands. (Approximate position: Lat. $52^{\circ}55'$ N. and Long. $173^{\circ}10'$ W.)
- Alaska Peninsula.* In southwestern Alaska. (Approximate position: Lat. $54^{\circ}46'$ — 60° N. and Long. $152^{\circ}40'$ — $163^{\circ}32'$ W.)
- Aleutian Islands.* The chain of islands extending out from the Alaska Peninsula. (Approximate position: Lat. $51^{\circ}6'$ — $55^{\circ}6'$ N. and Long. $163^{\circ}32'$ — $172^{\circ}18'$ W.)
- Amaknak Island.* In Unalaska Bay on the northeast side of Unalaska Island. (Approximate position: Lat. $53^{\circ}56'$ N. and Long. $166^{\circ}28'30''$ W.)
- Annette Island.* Near Ketchikan. (Approximate position: Lat. $55^{\circ}7'$ N. and Long. $131^{\circ}35'$ W.)
- Baranof Island.* In southeast Alaska. (Approximate position: Lat. $56^{\circ}10'$ — $57^{\circ}32'$ N. and Long. $135^{\circ}54'$ — $134^{\circ}48'$ W.)
- Bering Sea.* Sea to the north of the Aleutian Islands.
- Cook Inlet.* On the mainland in the Gulf of Alaska. (Approximate position: Lat. $59^{\circ}6'$ N. and Long. $151^{\circ}48'$ W.)
- Dixon Harbor.* Near the entrance to Cross Sound just north of Cape Spencer in southeast Alaska. (Approximate position: Lat. $58^{\circ}15'$ N. and Long. $136^{\circ}45'$ W.)
- Dutch Harbor.* On the northwest side of Unalaska Island. (Approximate position: Lat. $53^{\circ}53'57''$ N. and Long. $166^{\circ}28'35''$ W.)
- Golovnin Bay.* On the north side of Norton Sound. (Approximate position: Lat. $64^{\circ}16'$ N. and Long. $162^{\circ}43'$ W.)
- Gulf of Alaska.* Gulf in the northeast Pacific formed by the Alaska Peninsula and southeast Alaska.
- Juneau.* On the mainland. (Approximate position: Lat. $58^{\circ}18'$ N. and Long. $134^{\circ}25'$ W.)
- Ketchikan.* On Revillagigedo Island in southeast Alaska. (Approximate position: Lat. $55^{\circ}24'$ N. and Long. $131^{\circ}35'$ W.)
- Kodiak Bay.* On the east side of Kodiak Island. (Approximate position: Lat. $57^{\circ}48'$ N. and Long. $152^{\circ}21'$ W.)
- Kodiak Island.* In the Gulf of Alaska. (Approximate position: Lat. $57^{\circ}48'$ N. and Long. $152^{\circ}21'$ W.)
- Kukak Bay.* In Shelikof Strait. (Approximate position: Lat. $58^{\circ}21'$ N. and Long. $154^{\circ}5'$ W.)
- Norton Sound.* On the mainland in the northern part of the Bering Sea. (Approximate position: Lat. $63^{\circ}25'$ N. and Long. 166° W.)
- Orca.* On the eastern end of Prince William Sound. (Approximate position: Lat. $60^{\circ}36'$ N. and Long. $145^{\circ}40'$ W.)
- Popof Island.* One of the Shumagin Islands to the east of Unga Island. (Approximate position: Lat. $55^{\circ}20'$ N. and Long. $160^{\circ}33'$ W.)
- Port Clarence.* A bay on the mainland in the Bering Strait. (Approximate position: Lat. $65^{\circ}15'$ N. and Long. $166^{\circ}52'$ W.)
- Pribilof Islands.* A group of islands in the southeast part of the Bering Sea. (Approximate position: Lat. $56^{\circ}24'$ — 57° N. and Long. $169^{\circ}2'$ — $170^{\circ}8'$ W.)
- Prince William Sound.* In the northwest part of the Gulf of Alaska. (Approximate position: Lat. $60^{\circ}20'$ N. and Long. $146^{\circ}53'$ W.)
- St. Michael.* On St. Michael Island in Norton Sound. (Approximate position: Lat. $55^{\circ}20'$ N. and Long. $160^{\circ}33'$ W.)
- St. Michael Island.* On the south side of Norton Sound. (Approximate position: Lat. $63^{\circ}28'$ N. and Long. $161^{\circ}59'$ W.)
- St. Paul Island.* One of the Pribilof Islands. (Approximate position: Lat. $57^{\circ}8'$ N. and Long. $170^{\circ}20'$ W.)

- Shelikof Strait.* Between Kodiak Island and the Alaska Peninsula in southwest Alaska. (Approximate position: Lat. $58^{\circ}21'$ N. and Long. $154^{\circ}5'$ W.)
- Shumagin Islands.* A group of islands south of the Alaska Peninsula. (Approximate position: Lat. $55^{\circ}8'$ N. and Long. $159^{\circ}49'$ W.)
- Silver Bay.* At the head of Sitka Sound on the west side of Baranof Island. (Approximate position: Lat. $57^{\circ}5'$ N. and Long. $135^{\circ}20'$ W.)
- Sitka.* On Baranof Island. (Approximate position: Lat. $57^{\circ}3'$ N. and Long. $135^{\circ}18'$ W.)
- Skagway.* On the mainland. (Approximate position: Lat. $59^{\circ}27'$ N. and Long. $135^{\circ}19'$ W.)
- Spruce Island.* In Frederick Sound in southeast Alaska. (Approximate position: Lat. $57^{\circ}18'$ N. and Long. $133^{\circ}59'$ W.)
- Unalaska Island.* One of the innermost islands in the Aleutian Islands. (Approximate position: Lat. $53^{\circ}59'$ N. and Long. $166^{\circ}18'$ W.)
- Unga Island.* One of the Shumagin Islands. (Approximate position: Lat. $55^{\circ}10'$ N. and Long. $160^{\circ}44'$ W.)
- Uyak Bay.* On the northwestern side of Kodiak Island. (Approximate position: Lat. $57^{\circ}39'$ N. and Long. $153^{\circ}56'$ W.)
- Valdez.* At the head of Prince William Sound. (Approximate position: Lat. $61^{\circ}6'$ N. and Long. $146^{\circ}26'$ W.)
- Vallenar Point.* Near Tongass Narrows in southeast Alaska. (Approximate position: Lat. $55^{\circ}25'$ N. and Long. $131^{\circ}48'$ W.)
- Yakutat Bay.* On the mainland in the Gulf of Alaska. (Approximate position: Lat. $59^{\circ}33'$ N. and Long. $139^{\circ}48'$ W.)

BRITISH COLUMBIA:

- Amphitrite Point.* Near the entrance to Barkley Sound on the west coast of Vancouver Island. (Approximate position: Lat. $48^{\circ}54'$ N. and Long. $125^{\circ}33'$ W.)
- Arbutus Point.* Near Maple Bay in Sanson Narrows on the east side of Vancouver Island. (Approximate position: Lat. $48^{\circ}49'$ N. and Long. $123^{\circ}35'$ W.)
- Banks Island.* On the east side of Hecate Strait. (Approximate position: Lat. $53^{\circ}25'$ N. and Long. $130^{\circ}10'$ W.)
- Barkley Sound.* On the west side of Vancouver Island. (Approximate position: Lat. $48^{\circ}51'$ N. and Long. $125^{\circ}22'$ W.)
- Bazan Bay.* On the east side of the Saanich Peninsula south of Sidney. (Approximate position: Lat. $48^{\circ}38'$ N. and Long. $123^{\circ}25'$ W.)
- Beacon Hill.* On the south side of Victoria. (Approximate position: Lat. $48^{\circ}24'$ N. and Long. $123^{\circ}21'$ W.)
- Booth Bay.* On the west side of Saltspring Island. (Approximate position: Lat. $48^{\circ}52'$ N. and Long. $123^{\circ}33'$ W.)
- Bowers Islands.* On the east side of Cracroft Island in Chatham Channel. (Approximate position: Lat. $50^{\circ}35'$ N. and Long. $126^{\circ}14'$ W.)
- Brandon Islands.* In Departure Bay. (Approximate position: Lat. $49^{\circ}12'$ N. and Long. $123^{\circ}56'$ W.)
- Brockton Point.* At the northeast end of Stanley Park. (Approximate position: Lat. $49^{\circ}18'$ N. and Long. $123^{\circ}7'$ W.)
- Buccaneer Bay.* On the north side of Thormanby Island at the north end of the Strait of Georgia. (Approximate position: Lat. $49^{\circ}30'$ N. and Long. $123^{\circ}59'$ W.)
- Burrard Inlet.* On the mainland near the City of Vancouver. (Approximate position: Lat. $49^{\circ}18'$ N. and Long. $123^{\circ}3'$ W.)
- Calvert Island.* Between Fitz Hugh and Queen Charlotte Sounds north of Vancouver Island. (Approximate position: Lat. $51^{\circ}33'$ N. and Long. 128° W.)
- Campbell River.* On the east side of Vancouver Island in the northern part of the Strait of Georgia. (Approximate position: Lat. $50^{\circ}1'$ N. and Long. $125^{\circ}14'$ W.)
- Cape Lazo.* Northeast of Comox Harbour. (Approximate position: Lat. $49^{\circ}42'$ N. and Long. $124^{\circ}50'$ W.)

- Chanal Reef.* On the north side of Graham Island, Queen Charlotte Islands, near Langara Island. (Approximate position: Lat. $54^{\circ}11'$ N. and Long. $133^{\circ}2'$ W.)
- Clayoquot Sound.* On the west coast of Vancouver Island. (Approximate position: Lat. $49^{\circ}14'$ N. and Long. $126^{\circ}7'$ W.)
- Colquitz River.* Near Victoria. (Approximate position: Lat. $48^{\circ}26'$ N. and Long. $123^{\circ}24'$ W.)
- Comox.* On the eastern side of Vancouver Island in the northern part of the Strait of Georgia. (Approximate position: Lat. $49^{\circ}39'$ N. and Long. $124^{\circ}52'$ W.)
- Cordova Bay.* North of Victoria on Haro Strait. (Approximate position: Lat. $48^{\circ}31'$ N. and Long. $123^{\circ}20'$ W.)
- Crescent Beach.* On the east side of Boundary Bay. (Approximate position: Lat. $49^{\circ}3'$ N. and Long. $122^{\circ}53'$ W.)
- Deep Bay.* On the east side of Vancouver Island southwest of Denman Island at the north end of the Strait of Georgia. (Approximate position: Lat. $49^{\circ}28'$ N. and Long. $124^{\circ}45'$ W.)
- Deer Island.* In Beaver Harbour near Port Hardy at the northeast side of Vancouver Island. (Approximate position: Lat. $50^{\circ}43'$ N. and Long. $127^{\circ}22'$ W.)
- Departure Bay.* On the east side of Vancouver Island near Nanaimo. (Approximate position: Lat. $49^{\circ}11'$ N. and Long. $123^{\circ}58'$ W.)
- Dodger Channel.* On the east side of Barkley Sound near Trevor Channel. (Approximate position: Lat. $48^{\circ}51'$ N. and Long. $125^{\circ}12'$ W.)
- Dunsmuir Islands.* In Ladysmith Harbour. (Approximate position: Lat. $48^{\circ}59'$ N. and Long. $123^{\circ}48'$ W.)
- Esquimalt.* West of Victoria at the southern end of Vancouver Island. (Approximate position: Lat. $48^{\circ}25'$ N. and Long. $123^{\circ}26'$ W.)
- False Narrows.* South of Nanaimo between Mudge and Gabriola islands. (Approximate position: Lat. $49^{\circ}8'$ N. and Long. $123^{\circ}46'$ W.)
- Gonzales Point.* Near Victoria. (Approximate position: Lat. $48^{\circ}23'$ N. and Long. $123^{\circ}20'$ W.)
- Gordon Head.* Near Victoria east of St. Margaret Bay. (Approximate position: Lat. $48^{\circ}29'$ N. and Long. $123^{\circ}18'$ W.)
- Haro Strait.* Between the southeast side of Vancouver Island and San Juan Island. (Approximate position: Lat. $48^{\circ}30'$ N. and Long. $123^{\circ}14'$ W.)
- Hazardous Cove.* On the southwest side of Langara Island. (Approximate position: Lat. $54^{\circ}13'$ N. and Long. $133^{\circ}1'$ W.)
- Hecate Strait.* Between the mainland and Queen Charlotte Islands. (Approximate position: Lat. 53° N. and Long. 131° W.)
- Hope Island.* In Queen Charlotte Strait at the northeast side of Vancouver Island. (Approximate position: Lat. $50^{\circ}58'$ N. and Long. $127^{\circ}55'$ W.)
- Hopetown Passage.* South side of Watson Island at the entrance to Mackenzie Sound. (Approximate position: Lat. $50^{\circ}57'$ N. and Long. $126^{\circ}49'$ W.)
- Horswell Channel.* Near Nanaimo. (Approximate position: Lat. $49^{\circ}12'$ N. and Long. $123^{\circ}56'$ W.)
- Jackson Bay.* On Sunderland Channel off Johnstone Strait. (Approximate position: Lat. $50^{\circ}31'$ N. and Long. $125^{\circ}52'$ W.)
- James Island.* In Haro Strait near Sidney. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $123^{\circ}21'$ W.)
- Johnstone Strait.* Between Vancouver Island and the mainland. (Approximate position: Lat. $50^{\circ}29'$ N. and Long. $126^{\circ}10'$ W.)
- Juan de Fuca Strait.* Between the southern end of Vancouver Island and the Olympic Peninsula, northern Washington. (Approximate position: Lat. $48^{\circ}18'$ N. and Long. 124° W.)
- Kitsilano.* In Vancouver on English Bay near the entrance to False Creek. (Approximate position: Lat. $48^{\circ}17'$ N. and Long. $123^{\circ}3'$ W.)
- Klucksawi River.* On the northeast side of Vancouver Island near Port McNeill. (Approximate position: Lat. $50^{\circ}37'$ N. and Long. $127^{\circ}11'$ W.)

- Kraan Cove.* On Kraan Island in Hecate Bay, Clayoquot Sound, west coast of Vancouver Island. (Approximate position: Lat. $49^{\circ}15'$ N. and Long. $125^{\circ}56'$ W.)
- Kvarno Island.* North end of Ucluelet Inlet in Barkley Sound. (Approximate position: Lat. $48^{\circ}58'$ N. and Long. $125^{\circ}35'$ W.)
- Ladysmith Harbour.* On the east side of Vancouver Island. (Approximate position: Lat. $48^{\circ}59'$ N. and Long. $123^{\circ}47'$ W.)
- Langara Island.* At the extreme northwest of the Queen Charlotte Islands. (Approximate position: Lat. $54^{\circ}14'$ N. and Long. 133° W.)
- Little Toquart Bay.* On the west side of Barkley Sound on the west coast of Vancouver Island. (Approximate position: Lat. $49^{\circ}1'$ N. and Long. $125^{\circ}21'$ W.)
- Long Beach.* On the west coast of Vancouver Island between Ucluelet and Tofino. (Approximate position: Lat. $49^{\circ}4'$ N. and Long. $125^{\circ}43'$ W.)
- Masset.* At the entrance to Massett Inlet on the north end of Graham Island, Queen Charlotte Islands. (Approximate position: Lat. $54^{\circ}1'$ N. and Long. $132^{\circ}10'$ W.)
- Mayne Island.* In the southwest part of the Strait of Georgia. (Approximate position: Lat. $48^{\circ}51'$ N. and Long. $123^{\circ}18'$ W.)
- Mazzaredo Islands.* West of entrance to Naden Harbour on the north side of Graham Island, Queen Charlotte Islands. (Approximate position: Lat. $54^{\circ}5'$ N. and Long. $132^{\circ}34'$ W.)
- Mill Bay.* On the west side of Saanich Inlet on Vancouver Island. (Approximate position: Lat. $48^{\circ}39'$ N. and Long. $123^{\circ}33'$ W.)
- Muir Creek.* East of Sheringham Point. (Approximate position: Lat. $48^{\circ}22'$ N. and Long. $123^{\circ}51'$ W.)
- Nanaimo.* On the east side of Vancouver Island in the lower part of the Strait of Georgia. (Approximate position: Lat. $49^{\circ}10'$ N. and Long. $123^{\circ}56'$ W.)
- Nanoose Bay.* On the east side of Vancouver Island north of Nanaimo. (Approximate position: Lat. $49^{\circ}16'$ N. and Long. $124^{\circ}12'$ W.)
- Nootka.* East side of Nootka Island on the west coast of Vancouver Island. (Approximate position: Lat. $49^{\circ}37'$ N. and Long. $126^{\circ}38'$ W.)
- Nootka Sound.* On the west coast of Vancouver Island. (Approximate position: Lat. $49^{\circ}32'$ N. and Long. $126^{\circ}38'$ W.)
- Oak Bay.* East of Victoria on Vancouver Island. (Approximate position: Lat. $48^{\circ}26'$ N. and Long. $123^{\circ}18'$ W.)
- Page Lagoon.* At the southeast end of Hammond Bay, north of Departure Bay. (Approximate position: Lat. $49^{\circ}13'$ N. and Long. $123^{\circ}56'$ W.)
- Parksville.* On the east side of Vancouver Island, north of Nanaimo. (Approximate position: Lat. $49^{\circ}19'$ N. and Long. $124^{\circ}19'$ W.)
- Parry Bay.* North of Pedder Bay on Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}22'$ N. and Long. $123^{\circ}3'$ W.)
- Parsons Spit.* West of the entrance to Sooke Inlet on Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}22'$ N. and Long. $123^{\circ}44'$ W.)
- Pearse Islands.* South of Malcolm Island in Queen Charlotte Strait. (Approximate position: Lat. $50^{\circ}35'$ N. and Long. $126^{\circ}52'$ W.)
- Pedder Inlet.* At the southern end of Vancouver Island on Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}19'$ N. and Long. $123^{\circ}34'$ W.)
- Point Holmes.* Near Comox. (Approximate position: Lat. $49^{\circ}39'$ N. and Long. $124^{\circ}52'$ W.)
- Point No Point.* West of Sooke. (Approximate position: Lat. $48^{\circ}23'$ N. and Long. $123^{\circ}59'$ W.)
- Port Neville.* On the mainland on the northern side of Johnstone Strait. (Approximate position: Lat. $50^{\circ}30'$ N. and Long. $126^{\circ}5'$ W.)
- Port Renfrew.* On the south side of Port San Juan on the west coast of Vancouver Island near the entrance to Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}33'$ N. and Long. $124^{\circ}26'$ W.)
- Port San Juan.* On the west side of Vancouver Island near the entrance to Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}32'$ N. and Long. $124^{\circ}27'$ W.)

- Prescott Passage.* Between Arthur and Prescott Islands at the southern end of Chatham Sound. (Approximate position: Lat. $54^{\circ}4'$ N. and Long. $130^{\circ}36'$ W.)
- Qualicum Bay.* On the east side of Vancouver Island on the Strait of Georgia. (Approximate position: Lat. $49^{\circ}25'$ N. and Long. $124^{\circ}38'$ W.)
- Quatsino Sound.* On the west coast of Vancouver Island. (Approximate position: Lat. $50^{\circ}26'$ N. and Long. 128° W.)
- Queen Charlotte Islands.* Group of islands in northern British Columbia forming the west boundary of Hecate Strait. (Approximate position: Lat. $53^{\circ}10'$ N. and Long. $132^{\circ}10'$ W.)
- Queen Charlotte Sound.* Between the north end of Vancouver Island and the Queen Charlotte Islands. (Approximate position: Lat. $51^{\circ}30'$ N. and Long. $129^{\circ}30'$ W.)
- Queen Charlotte Strait.* Between the mainland and the northeast side of Vancouver Island. (Lat. $50^{\circ}45'$ N. and Long. $127^{\circ}13'$ W.)
- Rebecca Spit.* On the east side of Drew Harbour on Quadra Island. (Approximate position: Lat. $50^{\circ}57'$ N. and Long. $125^{\circ}12'$ W.)
- Sandstone Creek.* East of Cullite Cove on Juan de Fuca Strait west of Port Renfrew. (Approximate position: Lat. $48^{\circ}33'$ N. and Long. $124^{\circ}33'$ W.)
- Second Beach.* On the west side of Stanley Park near the entrance to Vancouver Harbour. (Approximate position: Lat. $49^{\circ}18'$ N. and Long. $123^{\circ}9'$ W.)
- Sherringham Point.* On Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}21'$ N. and Long. $123^{\circ}55'$ W.)
- Sidney.* North of Victoria on the east side of the Saanich Peninsula. (Approximate position: Lat. $48^{\circ}39'$ N. and Long. $123^{\circ}24'$ W.)
- Sidney Spit.* The northern portion of Sidney Island in Haro Strait. (Approximate position: Lat. $48^{\circ}38'$ N. and Long. $123^{\circ}21'$ W.)
- Sooke.* At the southwest side of Vancouver Island on Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}22'$ N. and Long. $123^{\circ}42'$ W.)
- Sooke Inlet.* West of Victoria on Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}22'$ N. and Long. $123^{\circ}42'$ W.)
- Spider Island.* Southwest of Hunter Island in Queen Charlotte Sound. (Approximate position: Lat. $51^{\circ}51'$ N. and Long. $128^{\circ}15'$ W.)
- Stanley Park.* At the entrance to Burrard Inlet. (Approximate position: Lat. $49^{\circ}19'$ N. and Long. $123^{\circ}9'$ W.)
- Strait of Georgia.* Between the mainland and the southern end of Vancouver Island. (Approximate position: Lat. $49^{\circ}17'$ N. and Long. $123^{\circ}38'$ W.)
- Striae Point.* West of entrance to Massett Sound on the north side of Graham Island, Queen Charlotte Islands. (Approximate position: Lat. $54^{\circ}5'$ N. and Long. $132^{\circ}15'$ W.)
- Table Island.* At the entrance to Smith Sound. (Approximate position: Lat. $51^{\circ}16'$ N. and Long. $127^{\circ}49'$ W.)
- Ten Mile Point.* At the south end of Cadboro Bay in Haro Strait. (Approximate position: Lat. $48^{\circ}27'$ N. and Long. $123^{\circ}16'$ W.)
- Thomas Point.* Near the south side of Beaver Harbour near Port Hardy. (Approximate position: Lat. $50^{\circ}42'$ N. and Long. $127^{\circ}24'$ W.)
- Tofino.* At the south side of the entrance to Clayoquot Sound on the west coast of Vancouver Island. (Approximate position: Lat. $49^{\circ}8'$ N. and Long. $125^{\circ}55'$ W.)
- Ucluelet.* Near the entrance to Barkley Sound on the west coast of Vancouver Island. (Approximate position: Lat. $48^{\circ}58'$ N. and Long. $125^{\circ}35'$ W.)
- Vancouver Island.* Off the southern coast of British Columbia. (Approximate position: Lat. $49^{\circ}30'$ N. and Long. $125^{\circ}25'$ W.)
- Victoria.* On the southeast side of Vancouver Island. (Approximate position: Lat. $48^{\circ}25'$ N. and Long. $123^{\circ}21'$ W.)
- Welcome Harbour.* At the northwest side of Porcher Island. (Approximate position: Lat. 54° N. and Long. $130^{\circ}38'$ W.)
- Whiffin Spit.* At the entrance to Sooke Harbour at the southwest side of Vancouver Island. (Approximate position: Lat. $48^{\circ}21'$ N. and Long. $123^{\circ}43'$ W.)
- White Rock.* On the mainland at the north side of Semiahmoo Bay near the International Boundary. (Approximate position: Lat. $49^{\circ}1'$ N. and Long. $122^{\circ}48'$ W.)

Whytecliff. Near the entrance to Howe Sound. (Approximate position: Lat. $49^{\circ}22'$ N. and Long. $123^{\circ}17'$ W.)

WASHINGTON:

American Camp Beach. On the south side of San Juan Island. (Approximate position: Lat. $48^{\circ}27'$ N. and Long. $122^{\circ}59'$ W.)

Anacortes. On Fidalgo Island near the entrance to Rosario Strait. (Approximate position: Lat. $48^{\circ}31'$ N. and Long. $122^{\circ}37'$ W.)

Andrews Bay. On the west side of San Juan Island. (Approximate position: Lat. $48^{\circ}33'$ N. and Long. $123^{\circ}10'$ W.)

Argyle. In North Bay on the east side of San Juan Island. (Approximate position: Lat. $48^{\circ}31'$ N. and Long. $123^{\circ}1'$ W.)

Argyle Lagoon. At the head of North Bay on the east side of San Juan Island. (Approximate position: Lat. $48^{\circ}31'$ N. and Long. $123^{\circ}1'$ W.)

Ballard Beach. Part of Seattle. (Approximate position: Lat. $47^{\circ}35'$ N. and Long. $122^{\circ}26'$ W.)

Bell Island. At the entrance to West Sound on Orcas Island. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $122^{\circ}59'$ W.)

Bellingham. In Bellingham Bay. (Approximate position: Lat. $48^{\circ}45'$ N. and Long. $122^{\circ}29'$ W.)

Brown Island. At the entrance to Friday Harbor on the east side of San Juan Island. (Approximate position: Lat. $48^{\circ}32'$ N. and Long. 123° W.)

Camano Island. East of Whidbey Island near the entrance to Puget Sound. (Approximate position: Lat. $48^{\circ}10'$ N. and Long. $122^{\circ}31'$ W.)

Canoe Island. In Upright Channel south of Shaw Island. (Approximate position: Lat. $48^{\circ}34'$ N. and Long. $122^{\circ}55'$ W.)

Cape Flattery. At the entrance to Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}23'$ N. and Long. $124^{\circ}44'$ W.)

Cattle Point. At the south end of San Juan Island. (Approximate position: Lat. $48^{\circ}27'$ N. and Long. $122^{\circ}58'$ W.)

Channel Rocks. Near Port Orchard. (Approximate position: Lat. $47^{\circ}34'$ N. and Long. $122^{\circ}32'$ W.)

Chuckanut Quarry. On the east side of Bellingham Bay. (Approximate position: Lat. $48^{\circ}41'$ N. and Long. $122^{\circ}30'$ W.)

Coupeville. On the south shore of Penn Cove on the east side of Whidbey Island. (Approximate position: Lat. $48^{\circ}13'$ N. and Long. $122^{\circ}41'$ W.)

Cowlitz Bay. On the west side of Waldron Island. (Approximate position: Lat. $48^{\circ}41'$ N. and Long. $123^{\circ}2'$ W.)

Crescent Bay. On Juan de Fuca Strait west of Port Angeles. (Approximate position: Lat. $48^{\circ}10'$ N. and Long. $123^{\circ}43'$ W.)

Deer Harbor. On the southwest side of Orcas Island. (Approximate position: Lat. $48^{\circ}37'$ N. and Long. 123° W.)

Dinner Island. In North Bay on the east side of San Juan Island. (Approximate position: Lat. $48^{\circ}30'$ N. and Long. 123° W.)

Dinner Point. In North Bay near Dinner Island. (Approximate position: Lat. $48^{\circ}1'$ N. and Long. $123^{\circ}1'$ W.)

Dungeness. At the east end of Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}10'$ N. and Long. $123^{\circ}10'$ W.)

Eagle Point. On the south side of San Juan Island. (Approximate position: Lat. $48^{\circ}28'$ N. and Long. $123^{\circ}2'$ W.)

East Sound. On the south side of Orcas Island. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $122^{\circ}50'$ W.)

Edmonds. On the mainland near the entrance to Puget Sound. (Approximate position: Lat. $47^{\circ}48'$ N. and Long. $122^{\circ}24'$ W.)

- English Camp.* At the northwest side of San Juan Island. (Approximate position: Lat. 48°35' N. and Long. 123°10' W.)
- Fairhaven.* In Bellingham Bay. (Approximate position: Lat. 48°43' N. and Long. 122°31' W.)
- False Bay.* On the west side of San Juan Island. (Approximate position: Lat. 48°29' N. and Long. 123°4' W.)
- Fort Lawton.* Part of Seattle. (Approximate position: Lat. 47°35' N. and Long. 122°26' W.)
- Fort Nisqually.* At the mouth of the Nisqually River in Puget Sound. (Approximate position: Lat. 47°3' N. and Long. 122°39' W.)
- Friday Harbor.* On the east side of San Juan Island. (Approximate position: Lat. 48°32' N. and Long. 123°1' W.)
- Garrison Bay.* At the northwest side of San Juan Island. (Approximate position: Lat. 48°35' N. and Long. 123°9' W.)
- Golden Gardens.* Park at the north end of Seattle. (Approximate position: Lat. 47°40' N. and Long. 122°25' W.)
- Goose Island.* At the south entrance to San Juan Channel. (Approximate position: Lat. 48°27' N. and Long. 122°57' W.)
- Griffin Bay.* At the southeast side of San Juan Island. (Approximate position: Lat. 48°28' N. and Long. 122°59' W.)
- Griffin Bay Lagoon.* In Griffin Bay on San Juan Island. (Approximate position: Lat. 48°28' N. and Long. 122°59' W.)
- Hein Bank.* In Juan de Fuca Strait south of San Juan Island near the entrance to Haro Strait. (Approximate position: Lat. 48°21' N. and Long. 123°2' W.)
- Henry Island.* At the northwest side of San Juan Island. (Approximate position: Lat. 48°36' N. and Long. 123°11' W.)
- Hog Island.* Near LaConner. (Approximate position: Lat. 48°23' N. and Long. 122°30' W.)
- Hood Canal.* Extending southwest from Admiralty Inlet in northern Washington. (Approximate position: Lat. 47°30' N. and Long. 123° W.)
- Horseshoe Bay.* On San Juan Island. (Approximate position: Lat. 48°30' N. and Long. 123°3' W.)
- Iceberg Point.* At the south end of Lopez Island. (Approximate position: Lat. 48°25' N. and Long. 122°53' W.)
- Illewild.* Near Friday Harbor. (Approximate position: Lat. 48°32' N. and Long. 123° W.)
- Indian Cove.* At the south end of Shaw Island near Canoe Island. (Approximate position: Lat. 48°34' N. and Long. 122°55' W.)
- Jeckyll Lagoon.* In Griffin Bay on San Juan Island. (Approximate position: Lat. 48°28' N. and Long. 122°59' W.)
- Juan de Fuca Strait.* Between Northern Washington and Vancouver Island. (Approximate position: Lat. 48°18' N. and Long. 124° W.)
- Kanaka Bay.* On the west side of San Juan Island. (Approximate position: Lat. 48°29' N. and Long. 123° 5' W.)
- Keyport.* At the entrance to Liberty Bay in Puget Sound. (Approximate position: Lat. 47°38' N. and Long. 122°37' W.)
- LaConner.* On the southeast side of Fidalgo Island. (Approximate position: Lat. 48°23' N. and Long. 122°39' W.)
- Lincoln Park.* Part of Seattle. (Approximate position: Lat. 47°34' N. and Long. 122°24' W.)
- Long Island.* At the southwest side of Lopez Island. (Approximate position: (Lat. 47°27' N. and Long. 122°56' W.)
- Lopez Island.* In the San Juan Archipelago east of San Juan Island. (Approximate position: Lat. 48°28' N. and Long. 122°54' W.)
- Lopez Pass.* Between Decatur and Lopez Islands. (Approximate position: Lat. 48°29' N. and Long. 122°49' W.)

- Mackaye Harbor.* At the southwest side of Lopez Island. (Approximate position: Lat. $48^{\circ}27'$ N. and Long. $122^{\circ}53'$ W.)
- Mats-Mats Bay.* At the northwest entrance to Port Ludlow. (Approximate position: Lat. $47^{\circ}57'$ N. and Long. $122^{\circ}40'$ W.)
- McConnell Island.* At the north end of San Juan Channel. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $123^{\circ}1'$ W.)
- Minnesota Reef.* On the east side of San Juan Island near Turn Island. (Approximate position: Lat. $48^{\circ}32'$ N. and Long. $122^{\circ}59'$ W.)
- Mitchell Bay.* At the northwest side of San Juan Island. (Approximate position: Lat. $48^{\circ}35'$ N. and Long. $123^{\circ}10'$ W.)
- Mosquito Pass.* Between Henry Island and San Juan Island. (Approximate position: Lat. $48^{\circ}35'$ N. and Long. $123^{\circ}11'$ W.)
- Mukkaw Bay.* On the open coast of Washington near Cape Flattery. (Approximate position: Lat. $48^{\circ}20'$ N. and Long. $124^{\circ}40'$ W.)
- Mummy Rocks.* At the southwest side of Lopez Island near Richardson. (Approximate position: Lat. $48^{\circ}27'$ N. and Long. $122^{\circ}55'$ W.)
- Neah Bay.* Near the entrance to Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}22'$ N. and Long. $124^{\circ}37'$ W.)
- North Bay.* On the east side of San Juan Island. (Approximate position: Lat. $48^{\circ}31'$ N. and Long. 123° W.)
- Obstruction Island.* East of Lopez Island in the San Juan Archipelago. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $122^{\circ}48'$ W.)
- Orcas Island.* In the San Juan Archipelago. (Approximate position: Lat. $48^{\circ}39'$ N. and Long. $122^{\circ}55'$ W.)
- Oysterville.* Near the entrance to Willapa Bay. (Approximate position: Lat. $46^{\circ}42'$ N. and Long. $124^{\circ}3'$ W.)
- Paradise Cove.* On Vashon Island in Puget Sound just south of Seattle. (Approximate position: Lat. $47^{\circ}25'$ N. and Long. $122^{\circ}30'$ W.)
- Parker Reef.* North of Orcas Island. (Approximate position: Lat. $48^{\circ}44'$ N. and Long. $122^{\circ}54'$ W.)
- Pearine Pass.* Between Obstruction and Blakely islands in the San Juan Islands. (Approximate position: Lat. $48^{\circ}35'$ N. and Long. $122^{\circ}49'$ W.)
- Penn Cove.* On the east side of Whidbey Island. (Approximate position: Lat. $48^{\circ}14'$ N. and Long. $122^{\circ}40'$ W.)
- Pleasant Beach.* At the south end of Bainbridge Island. (Approximate position: Lat. $47^{\circ}35'$ N. and Long. $122^{\circ}34'$ W.)
- Point Caution.* On the east side of San Juan Island north of Friday Harbor. (Approximate position: Lat. $48^{\circ}34'$ N. and Long. $123^{\circ}1'$ W.)
- Point Defiance.* Near Tacoma. (Approximate position: Lat. $47^{\circ}19'$ N. and Long. $122^{\circ}33'$ W.)
- Point Roberts.* At the entrance to Boundary Bay near the International Boundary. (Approximate position: Lat. $48^{\circ}58'$ N. and Long. $123^{\circ}5'$ W.)
- Port Angeles.* On the south shore of Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}8'$ N. and Long. $123^{\circ}27'$ W.)
- Port Ludlow.* On the west side of Admiralty Inlet. (Approximate position: Lat. $47^{\circ}55'$ N. and Long. $122^{\circ}41'$ W.)
- Port Orchard.* On the south side of Sinclair Inlet near Bainbridge Island in Puget Sound. (Approximate position: Lat. $47^{\circ}35'$ N. and Long. $122^{\circ}37'$ W.)
- Port Townsend.* At the southeast end of Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}7'$ N. and Long. $122^{\circ}45'$ W.)
- Puget Sound.* In the more restricted sense the inland waters south of Whidbey Island. (Approximate position: Lat. $47^{\circ}35'$ N. and Long. $122^{\circ}27'$ W.)
- Roche Harbor.* On the northwest side of San Juan Island. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $123^{\circ}9'$ W.)
- Rocky Bay.* At the northeast side of San Juan Island. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $123^{\circ}6'$ W.)

- Rosario Beach.* On Fidalgo Island near Deception Pass. (Approximate position: Lat. $48^{\circ}25'$ N. and Long. $122^{\circ}40'$ W.)
- Sackman Point.* Near Tracyton. (Approximate position: Lat. $47^{\circ}36'$ N. and Long. $122^{\circ}39'$ W.)
- Salmon Bank.* South of San Juan Island. (Approximate position: Lat. $48^{\circ}26'$ N. and Long. $123^{\circ}1'$ W.)
- San Juan County.* Chiefly the San Juan Archipelago. (Approximate position: Lat. $48^{\circ}35'$ N. and Long. $122^{\circ}54'$ W.)
- San Juan Island.* At the west side of the San Juan Archipelago facing Haro Strait. (Approximate position: Lat. $48^{\circ}33'$ N. and Long. $123^{\circ}10'$ W.)
- San Juan Islands.* Group of islands constituting the San Juan Archipelago between Vancouver Island and the mainland. (Approximate position: Lat. $48^{\circ}35'$ N. and Long. $122^{\circ}54'$ W.)
- Seattle.* On the east side of Admiralty Inlet. (Approximate position: Lat. $47^{\circ}36'$ N. and Long. $122^{\circ}22'$ W.)
- Shaw Island.* In the San Juan Archipelago south of Orcas Island. (Approximate position: Lat. $48^{\circ}33'$ N. and Long. $122^{\circ}58'$ W.)
- Smith Island.* In Juan de Fuca Strait south of Lopez Island. (Approximate position: Lat. $48^{\circ}19'$ N. and Long. $122^{\circ}51'$ W.)
- Snakelum Point.* On the east side of Whidbey Island near Coupeville. (Approximate position: Lat. $48^{\circ}12'$ N. and Long. $122^{\circ}40'$ W.)
- Sucia Islands.* North of Orcas Island. (Approximate position: Lat. $48^{\circ}45'$ N. and Long. $122^{\circ}54'$ W.)
- Tacoma.* At the southwest side of Elliot Bay. (Approximate position: Lat. $47^{\circ}16'$ N. and Long. $122^{\circ}27'$ W.)
- Tokeland.* At the entrance to Willapa Bay. (Approximate position: Lat. $46^{\circ}43'$ N. and Long. $124^{\circ}3'$ W.)
- Tracyton.* On the east side of Dyes Inlet on the west side of Puget Sound. (Approximate position: Lat. $47^{\circ}36'$ N. and Long. $122^{\circ}39'$ W.)
- Turn Island.* On the east side of San Juan Island in San Juan Channel. (Approximate position: Lat. $48^{\circ}32'$ N. and Long. $122^{\circ}58'$ W.)
- Turn Point.* On San Juan Island near Turn Island. (Approximate position: Lat. $48^{\circ}32'$ N. and Long. $122^{\circ}59'$ W.)
- Turn Rock.* East of Turn Island. (Approximate position: Lat. $48^{\circ}32'$ N. and Long. $122^{\circ}58'$ W.)
- Upright Head.* At the north end of Lopez Island. (Approximate position: Lat. $48^{\circ}34'$ N. and Long. $122^{\circ}53'$ W.)
- Waadah Island.* At the entrance to Neah Bay. (Approximate position: Lat. $48^{\circ}23'$ N. and Long. $124^{\circ}36'$ W.)
- Waldron Island.* Northwest of Orcas Island. (Approximate position: Lat. $48^{\circ}42'$ N. and Long. $123^{\circ}2'$ W.)
- Wasp Islands.* Near the north entrance to San Juan Channel. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $123^{\circ}2'$ W.)
- West Beach.* On the west side of Whidbey Island near Partridge Point. (Approximate position: Lat. $48^{\circ}14'$ N. and Long. $122^{\circ}46'$ W.)
- West Sound.* At the southwest side of Orcas Island. (Approximate position: Lat. $48^{\circ}36'$ N. and Long. $122^{\circ}58'$ W.)
- Whidbey Island.* At the east end of Juan de Fuca Strait. (Approximate position: Lat. $48^{\circ}12'$ N. and Long. $122^{\circ}45'$ W.)

BIBLIOGRAPHY

- Agardh, C. A. (1811). *Dispositis algarum Sueciae*. Pts. 1-5, Lund (1810-1812).
- (1820). *Species algarum*....Vol. 1, pt. 1: *Fucoideae*, pp. 1-168, Lundae.
- (1821). *Icones algarum ineditae*. Fasc. II. Holmiae. [2] pages, pls. XI-XX.
- (1822). *Species algarum*....Vol. 1, pt. 2, pp. 169-531, Lundae.
- (1824). *Systema algarum*. xxxviii + 312 pages. Lund.
- (1828). *Species algarum*....Vol. 2, pt. 1: pp. i-lxxvi + 1-189. Greifswald.
- (1846). *Icones algarum ineditae*. Ed. Nova. 4 pages, 20 pls. Lund.
- Agardh, J. G. (1842). *Algae maris mediterranei et adriatici, observationes in diagnosi specierum et dispositionem generum*. x + 164 pages, Parisiis.
- (1847). *Nya alger från Mexico*. Öfvers. K. Svensk. Vetensk.-Akad. Förhandl. 4:5-17.
- (1848). *Species genera et ordines algarum*... Vol. 1, pp. i-viii + 1-363, Lund.
- (1851). *Species genera et ordines algarum*.... Vol. 2, pt. 1, pp. i-xii, 1-336, (addenda) 337-351. Lund.
- (1852). *Species genera et ordines algarum*.... Vol. 2, pt. 2(2), pp. 505-700 + (addenda and index) 701-720. Lund.
- (1863). *Species genera et ordines algarum*.... Vol. 2, pt. 3(2), pp. 701-1291. Lund.
- (1867). *De Laminariis*. Lunds Univ. Årsskr. 4:1-36. Lund.
- (1872). *Bidrag till Florideernes systematik*. Lunds Univ. Årsskr. 2, 8(6): 1-60.
- (1876). *Species genera et ordines algarum*.... Vol. 3, pt. 1. *Epierisis systematis floridearum*. Pp. i-vii + 1-676 + (addenda) 677-724. Lund.
- (1880). *Till algerne systematik, nya bidrag*. Afd. 2. Lunds Univ. Årsskr. 17:1-134, 3 pls.
- (1883). *Till algerne systematik, nya bidrag*. Afd. 3. Lunds Univ. Årsskr. 19:1-177, 4 pls.
- (1884-5). *Till algerne systematik, nya bidrag*. Afd. 4. Lunds Univ. Årsskr. 21:1-117, 1 pl.
- (1887). *Till algerne systematik, nya bidrag*. Pt. 5, VIII. *Siphoneae*. Lunds Univ. Årsskr. 23:1-180 (incl. 4 pages. *Explicatio Iconum*), pls. 1-5.
- (1892). *Analecta algologica. Observationes de speciebus algarum minus cognitae earumque dispositione*. Lunds Univ. Årsskr. 28 (Afd. 2, Nr 6):1-182, pls. 1-3.
- (1894). *Analecta algologica. Continuatio II*. Lunds Univ. Årsskr. 30 (Afd. 2, Nr 7):1-98, 1 pl.
- (1899). *Analecta algologica. Continuatio V*. Lunds Univ. Årsskr. 35 (Afd. 2, Nr 35):1-160, 3 pls.
- Anderson, C. L. (1891). *List of California marine algae, with notes*. *Zoe* 2:217-225.
- Angst, L. (1926). *The gametophyte of Soranthera ulvoidea*. Publ. Puget Sound Biol. Sta. 5:159-163, 1 pl.
- (1927a). *The holdfast of Soranthera ulvoidea*. Publ. Puget Sound Biol. Sta. 5:265-275, 2 pls.
- (1927b). *Gametophytes of Costaria costata*. Publ. Puget Sound Biol. Sta. 5:293-307, 4 pls.
- Areschoug, J. E. (1842). *Algarum minus rite cognitarum pugillus primus*. *Linnaea* 16:225-236, pl. 8.
- (1847). *Enumeratio phycearum in maribus scandinaviae crescentium. Sectio prior*. *Nova Acta Reg. Soc. Sci. Upsaliensis* 13:223-382, 9 pls.
- (1850). *Phycearum, quae in maribus scandinaviae crescunt, enumeratio. Sectio posterior Ulvaceas continens*. *Nova Acta Reg. Soc. Sci. Upsaliensis Series 2*, 14:385-454, 3 pls.
- (1866). *Observationes phycologicae. Pt. 1. De confervaceis nonnullis*. *Nova Acta Reg. Soc. Sci. Upsaliensis Ser. 3*, 6:1-26, 4 pls.

- (1876). De tribus Laminariis et de Stephanocystide osmundaceae (Turn.) Trev. observationes praecursorias. Bot. Notiser, 1876:65-73.
- Artari, A. (1913). Zur Physiologie der Chlamydomonaden. Jahrb. Wiss. Bot., 52:410-466, 3 figs., 1 pl.
- Bailey, J. W., and W. H. Harvey (1862). Botany I, Lower Cryptogamia, in U.S. Exploring Expedition during the years 1838-1842 under the command of Charles Wilkes, U.S.N., 17(2):153-192, pls. 1-9.
- Batters, E. A. L. (1892a). *Gonimophyllum Buffhami*: a new marine alga. Jour. Bot. 30:65-67, pl. 319.
- (1892b). On *Conchocelis*, a new genus of perforating algae. Phyc. Mem. 1:25.
- (1896a). Some new British marine algae. Jour. Bot. 34:6-11.
- (1896b). New or critical British marine algae. Jour. Bot. 34:384-390.
- (1902). A catalogue of the British marine algae, being a list of all the species of seaweeds known to occur on the shores of the British Islands, with the localities where they are found. Jour. Bot. 40 (suppl.):1-107.
- Berkeley, M. J. (1833). Gleanings of British algae. [4] + 50 pages, 20 pls. London.
- Blankinship, J. W., and C. A. Keeler (1892). On the natural history of the Farallon Islands. Zoe 3:144-165.
- Bliding, C. (1939). Studien über Entwicklung und Systematik in der Gattung *Enteromorpha*. II. Bot. Notiser 1939:134-144, 7 figs.
- (1944). Zur Systematik der Schwedischen Enteromorphen. Bot. Notiser 1944: 331-356, 26 figs.
- Bornet, E., and C. Flahault (1888). Note sur deux nouveaux genres d'algues perforantes. Jour. de Bot. 2:161-165.
- (1889). Sur quelques plantes vivant dans le test calcaire des mollusques. Bull. Soc. Bot. France, 36:clxvii-clxxii, 7 pls.
- Bory De Saint-Vincent, J. B. (1825). *Grateloupelle*. Dict. Class. Hist. Nat. 1:591-598.
- (1826a). *Macrocyste*. Dict. Class. Hist. Nat. 10:8-10. Paris.
- (1826b). *Iridea*. Dict. Class. Hist. Nat. 9:15-16.
- (1828a). Cryptogamia, in Duperrey, L. I., Voyage autour du monde sur la corvette de sa Majesté, La Coquille, 2(1). 301 pages. Paris.
- (1828b). *Percursaria*. Dict. Class. Hist. Nat. 13:206. Paris.
- Braun, A. (1855). Algarum unicellularum genera nova et minus cognita. 111 pages, 6 pls. Leipzig.
- Briquet, J. (Ed.) (1935). International rules of botanical nomenclature. Ed. 3. xi + 151 pages. Jena.
- Butters, F. K. (1899). Observations on *Rhodymenia*. Minn. Bot. Studies 2(17):205-213, pl. 20.
- Cameron, A. T. (1916). The commercial value of the kelp beds of the Canadian Pacific Coast.—A preliminary report and survey of the beds. Contrib. Can. Biol. Sessional Paper No. 38a, III:25-39, 3 charts.
- Cameron, F. K. (1912). A preliminary report on the fertilizer resources of the United States. U.S. Sen. Doc. No. 190, 290 pages, 19 pls., 18 maps, 39 tables.
- (1915). Potash from kelp. Pt. I. Pacific kelp beds as a source of potassium salts. U. S. D. A. Report No. 100, 122 pages, 34 tables, 40 pls., 1 fig.
- Capt, L. (1930). The morphology and life-history of *Antithamnion*. Publ. Puget Sound Biol. Sta. 7:369-389, 5 pls.
- Clemens, W. A. (1933). A check list of the marine fauna and flora of the Canadian Pacific Coast. Nat. Res. Council, Ottawa. 88 pages.
- Coffin, H. G. (1952). Key to the common marine algae of Puget Sound. Walla Walla Coll. Publ. Dept. Biol. Sci. and Biol. Sta. 2 (1):1-12.
- Collins, F. S. (1903). The Ulvaceae of North America. Rhodora 5:1-31, pls. 41-43.
- (1909a). New species of Cladophora. Rhodora 11:17-20, 1 pl.
- (1909b). The green algae of North America. Tufts College Studies (Sci. Ser.) 2:79-480, 18 pls.

- (1913). The marine algae of Vancouver Island. Victoria Memorial Museum Bulletin No. 1, XIII:99-137.
- (1918). The green algae of North America. Second supplementary paper. Tufts College Studies. (Sci. Ser. No. 37) 4(7):1-106, 3 pls.
- Collins, F. S., I. Holden, and W. A. Setchell (1895-1919). Exsiccati Fascicles 1-46 and A - E. Phycotheca Boreali-Americana. Malden, Mass.
- Connell, R. (1928). Notes on marine algae collected at Departure Bay, B.C. The Can Field-Naturalist. 42: 99-100.
- Crandall, W. C. (1915). The kelp beds from Lower California to Puget Sound. Pt. II. In Cameron, F. K., Potash from kelp. U. S. D. A. Report No. 100, pp. 33-49.
- Cupp, E. E. (1943). Marine plankton diatoms of the west coast of North America. Bull. Scripps Inst. Ocean. Univ. Calif. 5 (1):1-238, pls. 1-5, 168 figs.
- Dawson, E. Y. (1941). A review of the genus *Rhodymenia* with descriptions of new species. Allan Hancock Pac. Expeds. 3:115-181, incl. 13 pls.
- (1944a). The marine algae of the Gulf of California. Allan Hancock Pac. Expeds. 3:189-454, pls. 31-77.
- (1944b). Some new Laurenciae from Southern California. Madroña 7(8):233-240, 3 pls.
- (1944c). A new parasitic red alga from southern California. Bull. Torrey Bot. Club 71(6):655-657, 4 figs.
- (1944d). Some new and unreported sublittoral algae from Cerros Island, Mexico. Bull. So. Calif. Acad. Sci. 43(3):102-112, incl. 3 pls.
- (1944e). Notes on Pacific Coast marine algae, I. Bull. So. Calif. Acad. Sci. 43(3):95-101, incl. 1 pl.
- (1945a). An annotated list of the marine algae and marine grasses of San Diego County, California. Occas. Papers San Diego Soc. Nat. Hist., 7:1-87.
- (1945b). Notes on Pacific Coast Marine algae, II. Bull. So. Calif. Acad. Sci. 44(1):22-27, incl. 2 pls.
- (1945c). Notes on Pacific Coast Marine algae, III. Madroña 8(3):93-97, 1 pl.
- (1945d). Marine algae associated with upwelling along the northwestern coast of Baja California, Mexico. Bull. So. Calif. Acad. Sci. 44(2):57-71, incl. 3 pls.
- (1945e). New and unreported marine algae from southern California and northwestern Mexico. Bull. So. Calif. Acad. Sci. 44(3):75-91, incl. 6 pls.
- (1946). A guide to the literature and distributions of the marine algae of the Pacific Coast of North America. Mem. So. Calif. Acad. Sci. 3, No. 1, 134 pages.
- (1949a). Contributions toward a marine flora of the southern California Channel Islands, I-III. Allan Hancock Foundation Publ. Occas. Paper No. 8, pp. 1-57. incl. 15 pls.
- (1949b). Studies of northeast Pacific Gracilariaceae. Allan Hancock Foundation Publ. Occas. Paper No. 7, 105 pages, incl. 25 pls.
- (1950a). A review of *Ceramium* along the Pacific Coast of North America with special reference to its Mexican representatives. Farlowia 4(1):113-138, 4 pls.
- (1950b). Notes on Pacific Coast marine algae V. Am. Jour. Bot. 37(5):337-344, figs. 1-6.
- (1951). A further study of upwelling and associated vegetation along Pacific Baja California, Mexico. Sears Found. Jour. Mar. Res. 10(1):39-58, 6 figs., 1 table.
- (1952a). Marine red algae of Pacific Mexico, Part I. Bangiales to Corallinaceae Subf. Corallinoideae. Allan Hancock Pac. Expeds. 17(1):1-239, incl. 33 pls.
- (1952b). Circulation within Bahia Vizcaino Baja California, and its effects on marine vegetation. Amer. Jour. Bot. 39:425-432, 3 figs., table.
- (1953a). Resumen de las investigaciones recientes sobre algas marinas de la costa pacifica de Mexico, con una sinopsis de la literatura, sinonimia y distribucion de las especies descritas. Revista de la Sociedad Mexicana de Historia Natural XIII: 97-197; i-x (addenda) with corrections (1954).
- (1953b). Notes on Pacific Coast marine algae VI. Wasmann Jour. Biol. 11(3): 323-351, 6 pls.

- (1953c). On the occurrence of *Gracilariopsis* in the Atlantic and Caribbean. Bull. Torrey Bot. Club 80(4):314-316.
- (1954a). The marine flora of Isla San Benedicto following the volcanic eruption of 1952-1954. Allan Hancock Foundation Publ., Occas. Paper No. 16, 25 pages, incl. 5 pls.
- (1954b). Marine red algae of Pacific Mexico. Part II. Cryptonemiales (cont.) Allan Hancock Pac. Expeds. 17(2):241-397, incl. 44 pls.
- (1955). A preliminary working key to the living species of *Dermatolithon*. In, Essays in the natural sciences in honor of Captain Allan Hancock, pp. 271-277. Univ. So. Calif. Press.
- Decaisne, J. (1842). Essais sur une classification des algues et polypiers calcifères. Ann. Sci. Nat. Sér. 2. Bot. 17:297-380, pls. 14-17.
- De La Pylaie, A. J. M. B. (1829). Flore de l'île de Terre-neuve et des îles Saint-Pierre et Mielon. 128 pages. Paris.
- Derbès, A., and A. J. J. Solier (1850). Sur les organes reproducteurs des algues. Ann. Sci. Nat. Bot. Sér. 3. 14:261-282, pls. 32-37.
- (1856). Memoire sur quelques points de la physiologie des algues. Compt. Rend Acad. Sci. Paris. 1 (Suppl.) 120 pages, 23 pls.
- Desmazières, J. B. (1859). Plantes cryptogames du nord de la France (Exsiccatae). Sér. 3. Editio nova fasc. I-XVI, 1853-60.
- De Toni, G. B. (1895). Sylloge algarum omnium hucusque cognitarum. Vol. 3. Fucoideae. Pp. i-xvi + 1-638. Padua.
- (1900). Sylloge algarum omnium hucusque cognitarum. Vol. 4 (sect. 2), pp. 387-776. Padua.
- (1924). Sylloge algarum omnium hucusque cognitarum. Vol. 4 (sect. 5), xi + 767 pages. Padua.
- De Toni, J. (1936). Noterelle di nomenclatura algologica. VII. Primo elenco di Floridee omonime [8] pages. Brescia.
- Doty, M. S. (1946). Critical tide factors that are correlated with the vertical distribution of marine algae and other organisms along the Pacific Coast. Ecology 27(4): 315-328, 6 figs.
- (1947a). The marine algae of Oregon. Pt. I. Chlorophyta and Phaeophyta. Farlowia 3(1):1-65, incl. 10 pls.
- (1947b). The marine algae of Oregon. Pt. II. Rhodophyta. Farlowia 3(2):159-215, pls. 11-14.
- (1948). The flora of Penikese, seventy-four years after. I. Penikese Island marine algae. Rhodora 50:253-269.
- Drew, K. M. (1928). A review of the genera *Chantrasia*, *Rhodochorton*, and *Acrochaetium* with descriptions of the marine species of *Rhodochorton* (Naeg.) gen. emend. on the Pacific Coast of North America. Univ. Calif. Publ. Bot. 14:139-224, pls. 37-48.
- (1949). *Conchoecelis*-phase in the life-history of *Porphyra umbilicalis* (L.) Kütz. Nature 164:748, 2 figs.
- (1954). Studies in the Bangioideae III. The life-history of *Porphyra umbilicalis* (L.) Kütz. var. *laciniata* (Lightf.) J. Ag. A. The *Conchoecelis*-phase in culture. Ann. Bot. N.S. 18:183-211.
- (1956). Reproduction in the Bangiophycidae. Bot. Rev. 22(8):553-611, 3 pls.
- Eaton, D. C. (1877). Description of a new alga of California. Proc. Amer. Acad. Arts and Sci., N.S. 4:245.
- Esper, E. J. C. (1802). Icones Fucorum cum characteribus systematicis, synonymis auctorum et descriptionibus novarum specierum. Abbildungen der Tange mit beygefügten systematischen Kennzeichen, Anführungen der Schriftsteller, und Beschreibungen der neuen Gattungen. Nürnberg, in der Raspeschen Buchhandlung. Fünftes Heft. oder des zweiten Theils erstes Heft. Pp. 1-53, pls. 112-135.

- (1804). *Icones Fucorum cum characteribus systematicis, synonymis auctorum et descriptionibus novarum specierum*. Abbildungen der Tange mit beygefügt systematischen Kennzeichen, Anführungen der Schriftsteller, und Beschreibungen der neuen Gattungen. Nürnberg, in der Raspeschen Buchhandlung. Sechstes Heft. oder des zweiten Theils zweites Heft. Pp. 53-101, pls. 136, 136a, 137-144, 144a, 145-157.
- Falkenberg, P. (1901). Die Rhodomelaceen des Golfes von Neapel und der Angrenzenden Meeres-Abschnitte. Fauna und Flora des Golfes von Neapel, etc. Monographie 26. xvi + 754 pages, 10 figs., 24 pls. Berlin.
- Farlow, W. G. (1876). List of the marine algae of the United States. U.S. Commission of Fish and Fisheries. Report of Commissioner for 1873-74 and 1874-75, pp. 691-718.
- (1877). On some algae new to the United States. Proc. Amer. Acad. Arts and Sci. 12:235-245.
- (1886). Notes on Arctic algae; based principally on collections made at Ungava Bay. Proc. Amer. Acad. Arts and Sci. 31(13):469-477.
- (1889). On some new or imperfectly known algae of the United States. I. Bull. Torrey Bot. Club 16:1-12, pls. 87 and 88.
- Farlow, W. G., C. L. Anderson, and D. C. Eaton (1878). *Algae exsiccatae Americae Borealis*, Fasc. 3.
- Feldmann, J. (1950). Sur l'existence d'une alternance de générations entre l'*Halicystis parvula* Schmitz et le *Derbesia tenuissima* (DeNot.) Crn. Compt. Rend. Acad. Sci. Paris, 230:322-323.
- Feldmann, J. and G. (1942). Recherches sur les Bonnemaisoniacees et leur alternance de générations. Ann. des Sci. Nat., Ser. 11, 3:75-175, 26 figs.
- Fensholt, D. E. (1951). Summaries of Doctoral Dissertations Northwestern University 19:560-563.
- (1955). An emendation of the genus *Cystophyllum* (Fucales). Amer. Jour. Bot. 42:305-322, 51 figs.
- Foslie, M. H. (1900a). New or critical calcareous algae. K. Norske Vidensk. Selsk. Skr. 1899 (5). 34 pages.
- (1900b). Five new calcareous algae. K. Norske Vidensk. Selsk. Skr. 1900(3). 6 pages.
- (1900c). Revised systematical survey of the Melobesieae. K. Norske Vidensk. Selsk. Skr. 1900(5). 22 pages.
- (1902). New species or forms of Melobesieae. K. Norske Vidensk. Selsk. Skr. 1902(2). 11 pages.
- (1906). Algologiske Notiser II. K. Norske Vidensk. Selsk. Skr. 1906(2). 23 pages.
- (1909). Algologiske Notiser VI. K. Norske Vidensk. Selsk. Skr. 1909(2). 63 pages.
- (1929). Contributions to a monograph of the Lithothamnia. In Printz, H. (Ed.). 60 pages, 75 pls. Trondheim.
- Freeman, E. M. (1899a). Observations on *Chlorochytrium*. Minn. Bot. Studies 2(16): 195-204, p. 19.
- (1899b). Observations on *Constantinea*. Minn. Bot. Studies 2(13):175-190, pls. 17 and 18.
- Fries, E. (1835). *Corpus florarum provincialium sueciae*. I. Floram scanicam. xxiv + 394 pages. Uppsala.
- Frye, T. C. (1906). *Nereocystis luetkeana*. Bot. Gaz. 42:143-146, 1 fig.
- (1915). The kelp beds of southeast Alaska. Pt. IV. In Cameron, F. K. Potash from kelp. U.S.D.A. Report No. 100, pp. 60-104.
- (1918). The age of *Pterygophora californica*. Publ. Puget Sound Biol. Sta. 2:65-71, 1 pl.
- Frye, T. C., G. B. Rigg, and W. C. Crandall (1915). The size of kelps on the Pacific Coast of North America. Bot. Gaz. 60(6):473-482, 2 pls.
- Frye, T. C., and S. M. Zeller (1915). *Hormiscia tetraciliata* sp. nov. Puget Sound Biol. Sta. Publ. 1(2):9-13, pl. 2.

- Gail, F. W. (1918). Some experiments with *Fucus* to determine the factors controlling its vertical distribution. Publ. Puget Sound Biol. Sta. 2:139-151.
- (1919). Hydrogen ion concentration and other factors affecting the distribution of *Fucus*. Publ. Puget Sound Biol. Sta. 2:287-306, 2 pls.
- Gardner, N. L. (1909). New Chlorophyceae from California. Univ. Calif. Publ. Bot. 3:371-375, pl. 14.
- (1910). Variations in nuclear extrusion among the Fucaeae. Univ. Calif. Publ. Bot. 4:121-136, 2 pls.
- (1913). New Fucaeae. Univ. Calif. Publ. Bot. 3:317-374, 18 pls.
- (1917). New Pacific Coast marine algae. I. Univ. Calif. Publ. Bot. 6:377-416, pls. 31-35.
- (1919). New Pacific Coast marine algae. IV. Univ. Calif. Publ. Bot. 6:487-496, pl. 42.
- (1922). The genus *Fucus* on the Pacific Coast of North America. Univ. Calif. Publ. Bot. 10:1-180, pls. 1-60.
- (1926). New Rhodophyceae from the Pacific Coast of North America. I. Univ. Calif. Publ. Bot. 13(11):205-226, pls. 15-21.
- (1927a). New Rhodophyceae from the Pacific Coast of North America. II. Univ. Calif. Publ. Bot. 13(13):235-272, pls. 24-35.
- (1927b). New Rhodophyceae from the Pacific Coast of North America. III. Univ. Calif. Publ. Bot. 13(16):333-368, pls. 59-71.
- (1927c). New Rhodophyceae from the Pacific Coast of North America. IV. Univ. Calif. Publ. Bot. 13(18):373-402, pls. 73-83.
- (1927d). New Rhodophyceae from the Pacific Coast of North America. V. Univ. Calif. Publ. Bot. 13(19):403-434, pls. 84-93.
- (1927e). New Rhodophyceae from the Pacific Coast of North America. VI. Univ. Calif. Publ. Bot. 14(4):99-138, pls. 20-36.
- (1927f). New species of *Gelidium* on the Pacific Coast of North America. Univ. Calif. Publ. Bot. 13:273-318, pls. 36-54.
- (1940). New species of Melanophyceae from the Pacific Coast of North America. Univ. Calif. Publ. Bot. 19(8):267-286, pls. 30-35.
- Gran, H. H., and E. C. Angst (1931). Plankton diatoms of Puget Sound. Puget Sound Biol. Sta. Publ. 7:417-519, 95 figs.
- Gray, J. E. (1867). *Lithothrix*, a new genus of Corallinae. Jour. Bot. 5:33, 2 figs.
- Greville, R. K. (1824). Scottish Cryptogamic Flora, or colored figures of cryptogamic plants belonging to the order Fungi, and intended to serve as a continuation of English Botany. Vol. 2, 60 pls. Edinburgh.
- (1827). Scottish cryptogamic flora..... 5: i-vi, pls. 241-300. Edinburgh.
- (1830). Algae britannicae..... lxxxviii + 218 pages, 19 pls. Edinburgh.
- Griggs, R. F. (1906). *Renfrewia parvula*, a new kelp from Vancouver Island. Postelsia (1906):245-274, pls. 16-19.
- (1907). *Cymathaere*, a kelp from the west coast. Ohio Naturalist 7(5):89-96, pl. 7.
- (1909a). Juvenile kelps and the recapitulation theory, I. American Naturalist, 43:7-30.
- (1909b). The sporophylls of *Lessoniopsis*. Ohio Naturalist 9(4):437-439.
- Guberlet, M. L. (1956). Seaweeds at ebb tide. Univ. Wash. Press. xvi + 182 pages, 86 pls.
- Hamel, G. (1928a). Floridées de France 5. Rev. Alg. 3:99-158.
- (1928b). Sur les genres *Acrochaetium* Naeg. et *Rhodochorton* Naeg. Rev. Alg. 3:159-210.
- Hamel, A. and G. (1929). Sur l'hétérogamie d'une Cladophoracée, *Lola* (nov. gen.). *lubrica* (Setch. and Gardn.). Compt. Rend. Acad. Sci. Paris 189:1094-1096.
- Hariot, P. (1889). Algues, in Mission scientifique du Cap Horn, 1882-1883. Vol. 5. Botanique. 109 pages, 9 pls. Paris.
- 78852-18½

- (1891). Liste des algues marines rapportées de Yokosaka (Japan), par M. le Doct. Savatier. Mém. Soc. Nat. des Sc. Nat. et Mathém. de Cherbourg, Tom. 27:211-230.
- Hartge, L. A. (1928). *Nercocystis*. Puget Sound Biol. Sta. Publ. 6:207-237, 7 pls.
- Harvey, W. H. (1833). Algae, in Hooker and Arnott's Botany of Captain Beechey's voyage. Pp. 163-165. London.
- (1841). Algae, in Hooker and Arnott's Botany of Captain Beechey's voyage. Pp. 406-409. London.
- (1847). *Nereis australis*....viii + 124 pages, 50 pls. London.
- (1849). *Phycologia britannica*.... Vol. 2, pp. i-vi, 121-240. London.
- (1851). *Phycologia britannica*.... Vol. 3, pp. i-xlv, pls. 241-360. London.
- (1852). *Nereis boreali-americana*. Pt. I. Melanospermeae. Smithsonian Contributions to Knowledge 3 (Art. 4):1-150, 12 pls.
- (1853). *Nereis boreali-americana*. Pt. II. Rhodospermeae. Smithsonian Contributions to Knowledge 4 (Art 5):1-258, pls. 13-36.
- (1858). *Nereis boreali-americana*. Pt. III. Chlorospermeae. Smithsonian Contributions to Knowledge 10 (Art. 2):1-140, 14 pls.
- (1859a). Characters of new algae, chiefly from Japan and adjacent regions collected by Charles Wright in the North Pacific Exploring Expedition under Captain John Rodgers. Proc. Amer. Acad., Vol. 4, pp. 327-334.
- (1859b). *Phycologia australica*....2. viii + text unnumbered, pls. 61-120, London.
- (1862). Notice of a collection of algae made on the north-west coast of North America, chiefly at Vancouver's Island, by David Lyall, Esq., M. D., R. N., in the years 1859-61. Jour. Proc. Linn. Soc. 6:157-176.
- Harvey, W. H., and J. W. Bailey (1851). Descriptions of seventeen new species of algae, collected by the United States Exploring Expedition. Proc. Boston Soc. Nat. Hist. 3:370-373. Cambridge.
- Hauck, F. (1885). Die Meeresalgen. In Rabenhorst, L., Kryptogamen-Flora von Deutschland, Oesterreich und der Schweiz. Vol. 2., pp. i-xxiv + 1-575, pls. 1-5, text-figs. 1-236. Leipzig.
- Hazen, T. E. (1902). The Ulotrichaceae and Chaetophoraceae of the United States. Mem. Torrey Bot. Club 11:135-250, 23 pls.
- Hervey, A. B. (1881). Sea mosses. xv + 281 pages, 20 pls. Boston.
- Hollenberg, G. J. (1935). A study of *Halicystis ovalis*. I. Morphology and reproduction. Am. Jour. Bot. 22:783-812, 5 figs., 4 pls.
- (1936). A study of *Halicystis ovalis*. II. Periodicity in the formation of gametes. Am. Jour. Bot. 23:1-3, 1 fig.
- (1939). A morphological study of *Amplisiphonia*, a new member of the Rhodomelaceae. Bot. Gaz. 101:380-390, 13 figs.
- (1942a). An account of the species of *Polysiphonia* on the Pacific Coast of North America. I. Oligosiphonia. Am. Jour. Bot. 29(9):772-785, 21 figs.
- (1942b). Phycological notes.—I. Bull. Torrey. Bot. Club. 69:528-538, 15 figs.
- (1943). New marine algae from southern California. Amer. Jour. Bot. 30:571-579, 16 figs.
- (1944). An account of the species of *Polysiphonia* on the Pacific Coast of North America. II. *Polysiphonia*. Amer. Jour. Bot. 31(8):474-483, 12 figs.
- (1948). Notes on Pacific Coast Marine Algae. Madroña 9(5):155-162.
- Holtz, F. H. (1903). Observations on *Pelvetia*. Minn. Bot. Studies 3:23-45, 6 pls.
- Humphrey, H. B. (1901). Observations on *Gigartina exasperata* Harv. Minn. Bot. Studies 2(33):601-607, pl. 42.
- Hurd, A. M. (1916a). *Codium dimorphum*. Puget Sound Marine Sta. Publ. 1(19):211-219.
- (1916b). *Codium mucronatum*. Puget Sound Marine Sta. Publ. 1(12):109-135.
- (1917). Winter condition of some Puget Sound algae. Puget Sound Biol. Sta. Publ. 1(29):341-348.
- Hus, H. T. A. (1900). Preliminary notes on west-coast *Porphyras*. Zoe 5:61-70.

- (1902). An account of the species of *Porphyra* found on the Pacific Coast of North America. Proc. Calif. Acad. Sci., 3rd Series, Botany 2(6):173-241, incl. 3 pls.
- Jao, C. (1937). New marine algae from Washington. Papers Mich. Acad. Sci., Arts and Letters, 22:99-116, pls. 12-14.
- Johnston, E. C. (1912). Brief notes on the kelps of Alaska. In Cameron, F. K. A preliminary report on the fertilizer resources of the United States. Appendix 0. U.S. Sen. Doc. No. 190, pp. 214-216.
- Jorde, I. (1933). Untersuchungen über den Lebenszyklus von *Urospora* Aresch. und *Codiolum* A. Braun. Nyt. Mag. f. Naturvid., 73:1-19, 5 figs., 1 pl.
- Kincaid, T., R. Stone, and R. Osborne (1954a). The Japanese Sea-Weed. Willapa Pacific Oyster Bulletin, Ser. 13, No. 3, July 2, 1954.
- (1954b). Japanese Algae. Willapa Pacific Oyster Bulletin. Ser. 13, No. 2, June 21, 1954.
- Kjellman, F. R. (1872). Bidrag till käannedomen om Skandinaviens Ectocarpeer och Tilopterider. 112 pages, 2 pls. Stockholm.
- (1877a). Ueber die Algenvegetation des Murmanschen Meeres an der Westküste von Nowaja Semlja und Wajgatsch. Nova Acta Reg. Soc. Sci., Ser. 3, Vol. extraord. (No. 12). 1-86, 1 pl. Uppsala.
- (1877b). Om Spetsbergens marina Klorofyllförande Thallophyter, II. Bihang till K. Svensk Vetensk.-Akad. Handl., Vol. 4, No. 6, pp. 1-61, pls. 1-5. Stockholm.
- (1883). The algae of the Arctic Sea. K. Svensk. Vetensk.-Akad. Handl. 20(5): 1-350 + [1], 31 pls.
- (1889a). Undersökning af några till släktet *Adenocystis* Hook. fil. et Harv. Hanföda Alger. Bihang K. Svensk. Vetensk.-Akad. Handl. 15 (Afd. 3, No. 1):1-20, 1 pl.
- (1889b). Om Beringshafvets algflora. K. Svensk. Vetensk.-Akad. Handl., 23(8). 58 pages, 7 pls.
- Kleen, E. (1874). Om Nordlandens högra hafsalger. Akademisk afhandling. Oefversigt af Kongl. Vetensk.-Akad. Förhandl., No. 9. Pp. 1-46, 2 pls. Stockholm.
- Knox, E. (1926). Some steps in the development of *Porphyra naiadum*. Puget Sound Biol. Sta. Publ. 5: 125-135, pls. 7-8.
- Koch, W. (1950). Entwicklungsgeschichtliche und physiologische Untersuchungen an Laboratoriumskulturen der Rotalge *Trailiella intricata* Batters (Bonnemaisoniaceae). Arch. f. Mikrobiol. 14:635-660, figs. 1-25.
- (1951). Historisches zum Vorkommen der Rotalge *Trailiella intricata* (Batters) bei Helgoland. Arch. f. Mikrobiol. 16:78-79.
- Kornmann, P. (1938). Zur Entwicklungsgeschichte von *Derbesia* und *Halicystis*. Planta 28:464-470, 4 figs.
- Kuckuck, P. (1891). Beiträge zur Kenntnis einiger *Ectocarpus*-Arten der Kieler Förde. Bot. Centralblatt, Vol. 48, Nr 42, pp. 65-71, figs. 1-3.
- (1894). Bemerkungen zur marinen Algenvegetation von Helgoland. Wissenschaft. Meeresuntersuch. Biolog. Anstalt auf Helgoland, N. F., Vol. 1, pt. 1, pp. 225-263, 29 figs.
- (1929). Fragmente einer Monographie der Phaeosporeen. Nach dem Tode des Verfassers herausgegeben von Wilhelm Nienburg. Meeresunters., N. F. Bd. 17 (Abt. Helgoland, Heft 2):1-93, figs. 1-155. Oldenburg.
- Kuntze, O. (1891). Revisio generum plantarum. 2, pp. 375-1011. Würzburg.
- Kützing, F. T. (1833). Algologische Mittheilungen. Flora 16: 513-521.
- (1843). Phycologia generalis oder Anatomie, Physiologie und Systemkunde der Tange. xvi + 458 pages, 80 pls. Leipzig.
- (1845). Phycologia germanica. . . . x + 340 pages. Nordhausen.
- (1849). Species algarum. . . . vi + 922 pages. Leipzig.
- (1856). Tabulae phycologicae oder Abbildungen der Tange. Bd. 6. Nordhausen. Pp. i-iv + 1-35, pls. 1-100.
- (1858). Tabulae phycologicae oder Abbildungen der Tange. Vol. 8, pp. i-ii, 1-48, 100 pls. Nordhausen.

- Kylin, H. (1907). Studien über die Algenflora der schwedischen Westküste. Akad. Abhandl. iv + 287 pages, 7 pls., 1 map, text-figs. Uppsala.
- (1924). Studien über die Delesseriaceen. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 20. Nr 6. K. Fysiogr. Sällsk. Handl. N. F. Bd. 35. Nr 6., pp. 1-111, 80 figs.
- (1925). The marine algae in the vicinity of the Biological Station at Friday Harbor, Wash. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 21. Nr 9. K. Fysiogr. Sällsk. Handl. N. F. Bd. 36. Nr 9. Pp. 1-87, 47 figs.
- (1928). Entwicklungsgeschichtliche Florideenstudien. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 24. Nr 4. Kungl. Fysiogr. Sällsk. Handl. N. F. Bd. 39. Nr 4. Pp. 1-127, 64 figs.
- (1930). Über die Entwicklungsgeschichte der Florideen. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 26. Nr 6. K. Fysiogr. Sällsk. Handl. N. F. Bd. 41. Nr 6. Pp. 1-104, 56 figs.
- (1931). Die Florideenordnung Rhodymeniales. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 27. Nr 11. K. Fysiogr. Sällsk. Handl. N. F. Bd. 42. Nr. 11. 48 pages, 8 figs., 20 pls.
- (1932). Die Florideenordnung Gigartinales. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 28. Nr 8. K. Fysiogr. Sällsk. Handl. N. F. Bd. 43. Nr 8. 88 pages, 22 figs., 28 pls.
- (1933). Über die Entwicklungsgeschichte der Phaeophyceen. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 29. Nr 7. K. Fysiogr. Sällsk. Handl. N. F. Bd. 44. Nr 7. Pp. 1-102, 35 figs., 2 pls.
- (1934). Zur Kenntnis der Entwicklungsgeschichte einiger Phaeophyceen. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 30. Nr 9. K. Fysiogr. Sällsk. Handl. N. F. Bd. 45. Nr 9. Pp. 1-19, 10 figs.
- (1935a). Über einige kalkbohrende Chlorophyceen. Förhandl. K. Fysiogr. Sällsk. i. Lund 5 (No. 19):1-19, 7 figs.
- (1935b). Zur nomenclature einigen Delesseriaceen. Förhandl. K. Fysiogr. Sällsk. i. Lund, 5 (No. 23):1-5.
- (1937). Bemerkungen über die Entwicklungsgeschichte einiger Phaeophyceen. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 33. Nr 1. K. Fysiogr. Sällsk. Handl. N. F. Bd 48. Nr 1. Pp. 1-34, 5 figs.
- (1940). Die Phaeophyceenordnung Chordariales. Lunds Univ. Årsskr. N. F. Avd. 2. Bd. 36. Nr 9. K. Fysiogr. Sällsk. Handl. N. F. Bd. 51. Nr 9. 67 pages, 30 figs., 8 pls.
- (1941). Californische Rhodophyceen. Lunds. Univ. Årsskr. N. F. Avd. 2. Bd. 52. Nr 2. Pp. 1-51, 7 figs., 13 pls.
- (1944). Die Rhodophyceen der schwedischen Westküste. Lunds Univ. Årsskr. N. F. Avd. 2, 40(2). 104 pages, 53 figs., 32 pls.
- (1947a). Über die Fortpflanzungsverhältnisse in der Ordnung Ulvales. K. Fysiogr. Sällsk. Lund Förhandl. 17(17):1-9.
- (1947b). Die Phaeophyceen der schwedischen Westküste. Lunds Univ. Årsskr., N. F., Avd. 2, 43(4). 99 pages, 61 figs., 18 pls.
- Lamouroux, J. V. (1809). Mémoire sur trois nouveaux genres de la famille des algues marines. Jour. de Bot. 2:129-135, 1 pl.
- (1813). Essai sur les genres de la famille des thalassiphytes non articulées. Ann. Mus. d'Hist. Nat. 20:21-47, 115-139, 267-293, pls. 7-13. Paris.
- (1825). *Gelidium*, in Dict. Class. Hist. Nat. 7:190-191. Paris.
- Leavitt, C. K. (1904). Observations on *Callymenia phyllophora* J. Ag. Minn. Bot. Studies, 3:291-296, 2 pls.
- LeJolis, A. (1863). Liste des algues marines de Cherbourg. Paris. Mem. Soc. Sci. Nat. 10:1-168, 6 pls. Cherbourg.
- Levring, T. (1939). Über die Phaeophyceengattungen *Myriogloia* Kuck. und *Haplogloia* nov. gen. Bot. Notiser 1939:40-52, 5 figs.
- (1940). Die Phaeophyceengattung *Chlanidophora*, *Distromium* und *Syringoderma*. K. Fysiogr. Sällsk. i Lund Förhandl., 10(20):1-11.

- Link, H. P. (1820). Epistola.... de algis aquaticis in genera disponendis. In Nees von Esenbeck, C. G. D. (Ed.), *Horæ physicæ berolinenses*, No. 1. 8 pages, 1 pl. Bonn.
- Linnaeus, C. (1753). *Species plantarum*... 1:(1-12), 1-560. 2:561-1200, (1-31). Holmiae.
- Lyngbye, H. C. (1819). *Tentamen hydrophytologiae danicae*. xxxii + 248 pages, 70 pls. Copenhagen.
- MacMillan, C. (1899). Observations on *Nereocystis*. *Bull. Torr. Bot. Club*. 26:273-296, 2 pls.
- (1900). Observations on *Lessonia*. *Bot. Gaz.* 30:318-334, pls. 19-21.
- (1902a). Observations on *Pterygophora*. *Minn. Bot. Studies*. 2(51):723-741, pls. 57-61.
- (1902b). The kelps of Juan de Fuca. *Postelsia* (1902):193-220, pls. 22-26.
- Manza, A. V. (1937a). Some north Pacific species of articulated corallines. *Proc. Nat. Acad. Sci. of U.S.A.*, 23:561-567.
- (1937b). The genera of the articulated corallines. *Proc. Nat. Acad. Sci.* 23:41-48.
- (1940). A revision of the genera of articulated corallines. *Phillipine Jour. Sci.*, 71:239-316, 20 pls.
- Mason, L. R. (1953). The crustaceous coralline algae of the Pacific Coast of the United States, Canada, and Alaska. *Univ. Calif. Publ. Bot.* 26:313-390, pls. 27-46.
- McCutcheon, R. S., L. Arrigoni, and L. Fischer (1949). A phytochemical investigation of the kelps *Cymathere triplicata*, *Hedophyllum sessile* and *Egregia menziesii*. *Jour. Am. Pharm. Assoc. Sci. Ed.* 38(4):196-200.
- McKay, H. H. (1933). The life-history of *Pterygophora californica* Ruprecht. *Univ. Calif. Publ. Bot.*, 17:111-147, pls. 9-15.
- Meneghini, G. (1838). Cenni sulla organografia e fisiologia delle alghe. *Nuovi Saggi R. Academia Sci. Lett. ed Arti*, Vol. 4:324-388. Padova.
- Moore, L. B. (1928). *Pelvetia fastigiata*. *Bot. Gaz.* 86:419-434, 25 figs.
- Montagne, C. (1842). *Prodromus generum specierumque phycearum novarum in itinere ad polum antarcticum....* Parisiis. 16 pages.
- Muenschel, W. L. C. (1915a). Ability of seaweeds to withstand dessication. *Puget Sound Biol. Sta. Publ.* 1:19-23.
- (1915b). A study of the algal associations of San Juan Island. *Puget Sound Biol. Sta. Publ.* 1:59-84.
- (1916). Distribution of shore algae on Shaw Island. *Puget Sound Biol. Sta. Publ.* 1:199-210.
- (1917). A key to the Phaeophyceae of Puget Sound. *Puget Sound Biol. Sta. Publ.* 1(25):249-284, 67 pls.
- Myers, M. E. (1925). Contributions towards a knowledge of the life-histories of the Melanophyceae. *Univ. Calif. Publ. Bot.*, 13:109-124, 3 pls.
- (1928). The life-history of the brown alga, *Egregia menziesii*. *Univ. Calif. Publ. Bot.* 14:225-247, pls. 49-52.
- Nardo, G. D. (1834). De Corallinis ac Nulliporis. auct. *Isis von Oken*, 1834:673-675.
- Newcombe, C. F. (1923). Menzies' journal of Vancouver's voyage, April to October, 1792. *Archiv. Brit. Col., Mem. No. 5*, xxii + 171 pages, 14 pls. Victoria.
- Newton, L. (1931). A handbook of British Seaweeds. xiii + 478 pages, 270 figs. London.
- Norris, R. E. (1954). Morphological studies on the Kallymeniaceae. Summary Doctoral Dissertation, Univ. Calif. (Botany) 1954:1-4.
- (1957). Morphological studies on the Kallymeniaceae. *Univ. Calif. Publ. Bot.* 28(5):251-334, 25 figs., pls. 28-40.
- Olson, M. E. (1899). Observations on *Gigartina*. *Minn. Bot. Studies Vol.* 2(11):154-168, pls. 13 and 14.
- Papenfuss, G. F. (1944a). Structure and taxonomy of *Taenioma*, including a discussion on the phylogeny of the Ceramiales. *Madroña* 7(7):193-214, pls. 23-24, fig. 1.
- (1944b). Notes on algal nomenclature. III. Miscellaneous species of Chlorophyceae, Phaeophyceae and Rhodophyceae. *Farlowia* 1(3):337-346.

- (1945). Review of the *Acrochaetium-Rhodochorton* complex of red algae. Univ. Calif. Publ. Bot. 18(14):299-334.
- (1946). Proposed names for the phyla of algae. Bull. Torrey Bot. Club, 73: 217-218.
- (1947a). Generic names of algae proposed for conservation. I. Madroña 9(1):8-17.
- (1947b). Further contributions toward an understanding of the *Acrochaetium-Rhodochorton* complex of the red algae. Univ. Calif. Publ. Bot. 18:433-447.
- (1947c). Extension of the brown algal order Dictyosiphonales to include the Punctariales. Bull. Torrey Bot. Club 74(5):398-402.
- (1950a). Generic names of algae proposed for conservation. II. Madroña 10(6):179-184.
- (1950b). Review of the genera of algae described by Stackhouse. Hydrobiologia 2(3):181-208.
- (1955). Classification of the algae. In A century of progress in the natural sciences 1853-1953. Calif. Acad. Sci. Pp. 115-224.
- Pease, V. A. (1917). North Pacific Coast species of *Desmarestia*. Puget Sound Biol. Sta. Publ. 1:383-394, pls. 83 and 84.
- (1920). Taxonomy and morphology of the ligulate species of the genus *Desmarestia*. Puget Sound Biol. Sta. Publ. Vol. 2, pp. 313-367, pls. 54-63.
- Postels, A. and Ruprecht, F. (1840). Illustrationes Algarum in Itinere circa Orbem.... Exsecuto in Oceano Pacifico Imprimis Septentrionali ad Littora Rossica Asiatico-Americana Collectarum. Pp. iv + 22 + [2], 40 pls. Leningrad.
- Proskauer, J. (1950). On *Prasinocladus*. Amer. Jour. Bot. 37: 59-66, 40 figs.
- Ramaley, F. (1903). Observations on *Egregia menziesii*. Minn. Bot. Studies 3:1-9, pls. 1-4.
- Reinbold, T. (1893). Revision von Juergens' algae aquaticae. La Nuova Notarisia, Ser. 4, pp. 192-206.
- Reinke, J. (1879). Zwei parasitische Algen. Bot. Zeit. 37:473-478, 1 pl.
- (1889). Algenflora der westlichen Ostsee deutschen Antheils. Eine systematische-pflanzengeographische Studie. Komm. Wiss. Unters. Meere Kiel 6 : i-xi + 1-101, figs. 1-8, 1 map.
- (1903). Studien zur vergleichenden Entwicklungsgeschichte der Laminariaceen. 67 pages, 15 figs. Kiel.
- Reinsch, P. F. (1875). Contributiones ad algologiam et fungologiam 1. Nürnberg. 103 pages, 131 pls.
- Rigg, G. B. (1912a). Notes on the ecology and economic importance of *Nereocystis luetkeana*. Plant World 15:83-92, 8 figs., 1 table.
- (1912b). Ecological and economic notes on Puget Sound kelps. In Cameron, F. K. A preliminary report on the fertilizer resources of the United States. Appendix L. U.S. Sen. Doc. No. 190, pp. 179-193.
- (1915a). The kelp beds of Puget Sound. Part III. In Cameron, F. K. Potash from kelp. U. S. D. A. Report No. 100, pp. 50-59.
- (1915b). The kelp beds of western Alaska. Part V. In Cameron, F. K. Potash from kelp. U. S. D. A. Report No. 100, pp. 105-122.
- (1917). Seasonal development of bladder kelp. Puget Sound. Biol. Sta. Publ. 1(27) : 309-318.
- Rigg, G. B. and R. C. Miller (1949). Intertidal plant and animal zonation in the vicinity of Neah Bay, Washington. Proc. Calif. Acad. Sci. 4th Ser. Vol. 26, pp. 323-351, 8 figs., 2 tables.
- Rosenvinge, L. K. (1893). Grønlands Havalger. Med. om Grønland. 3:765-981, 57 figs., 2 pls.
- (1894). Les algues marines du Groenland. Ann. Sci. Nat. Sér. 7, 19:53-164.
- (1900). Note sur une Floridée aérienne (*Rhodochorton islandicum* nov. sp.). Bot. Tidsskr. 23:61-81.
- (1909). Marine algae of Denmark 1. Rhodophyceae. 1. K. Danske Vidensk. Selsk. Skrifter, Naturv. og. Mathem. Afd., 7. Række, 7: (1): 1-151.

- Ruprecht, F. J. (1851). Tange des ochotskischen Meeres. In Middendorff, A. T. von, Reise in den äussersten Norden und Osten Sibiriens während der Jahre 1843 und 1844. Bd. 1(2): Botanik, pp. 191-435, pls. 9-18. St. Petersburg.
- (1852). Neue oder unvollständig bekannte Pflanzen aus dem nördlichen Theile des stille Oceans. Mém. de l'Acad. St. Petersburg Sci. Nat. 7:57-82. 8 pls.
- Sanborn, E. I. and M. S. Doty (1947). The marine algae of the Coos Bay-Cape Arago Region of Oregon. Oregon State Monogr. Studies in Bot. No. 8, 66 pages, 4 pls., 1 map.
- Saunders, deA. (1895). A preliminary paper on *Costaria* with description of new species. Bot. Gaz. 20:54-58, pl. 7.
- (1898). Phycological memoirs. Proc. Calif. Acad. Sci., Ser. 3, Bot. 1:147-168, 21 pls.
- (1901a). A new species of *Alaria*. Minn. Bot. Studies 2(30):561-562, pl. 33.
- (1901b). Papers from the Harriman Alaska Expedition. XXV. The algae of the expedition. Proc. Wash. Acad. Sciences 3:391-486, pls. 10-26.
- Seagel, R. F. (1948). An investigation on marine plants near Hardy Bay, B.C. Prov. Dept. Fisheries, No. 1., 70 pages, 26 figs., 11 tables, Victoria, B.C.
- (1953). A morphological study of some dorsiventral Rhodomelaceae. Univ. Calif. Publ. Bot. 27:1-108, figs. 1-20.
- (1956). Introduction of a Japanese alga, *Sargassum mulicum*, into the northeast Pacific. Fish. Res. Papers, Wash. Dept. Fish. 1(4):1-10, 14 figs.
- Schmitz, F. (1889). Systematische übersicht der bisher bekannten Gattungen der Florideen. Flora, 72:435-456, pl. 1.
- (1893). Die Gattung *Lophothalia* J. Ag. Ber. d. deutsch. bot. Ges. Bd. 11:212-232.
- (1897). Nemastomaceae. In Schmitz and Hauptfleisch, in Engler, A. and Prantl, K., Die natürlichen Pflanzenfamilien, pp. 521-527, figs. 278-280. Leipzig.
- Schrader, H. F. (1903). Observations on *Alaria nana* sp. nov. Minn. Bot. Studies, Series 3:157-165, 4 pls.
- Segi, T. (1951). Systematic study of the genus *Polysiphonia* from Japan and its vicinity. Jour. Fac. Fish., Pref. Univ. Mie. 1:169-272, pls. 1-16, figs. 1-36.
- Setchell, W. A. (1891). Concerning the life-history of *Saccorhiza dermatodea* (DeLaPyl.) J. Ag. Proc. Am. Acad. Arts and Sci., 26:177-217, pls. 1-2.
- (1896). Notes on kelps. Erythea 4:41-48, pl. 1.
- (1899a). Directions for collecting and preserving algae. Erythea 7:24.
- (1899b). Algae of the Pribilof Islands. In Jordan, Fur seals and fur seal islands of the North Pacific Ocean, 3:589-596, pl. 95.
- (1901). Notes on algae. I. Zoe 5:121-129.
- (1903). On the classification and geographical distribution of the Laminariaceae. Conn. Acad. Sci. Trans. 9:333-375.
- (1905). Regeneration among kelps. Univ. Calif. Publ. Bot. 2:139-169, pls. 15-17.
- (1906). A revision of the genus *Constantinea*. Nuova Notarisia, 17:162-173.
- (1908a). Critical notes on the Laminariaceae. Nuova Notarisia. 19:90-101.
- (1908b). *Nereocystis* and *Pelagophycus*. Bot. Gaz. 45:125-134.
- (1912a). Algae novae et minus cognitae, I. Univ. Calif. Publ. Bot. 4(14):229-268, pls. 25-31.
- (1912b). The kelps of the United States and Alaska. Appendix K. In Cameron, F. K. A preliminary report on the fertilizer resources of the United States. Appendix K. United States Senate Document No. 190, pp. 130-178.
- (1914a). Parasitic Florideae. I. Univ. Calif. Publ. Bot. 6:1-35, pls. 1-6.
- (1914b). The Scinaia assemblage. Univ. Calif. Publ. Bot. 6:79-153, pls. 10-16.
- (1923a). Parasitic Florideae. II. Univ. Calif. Publ. Bot. 10:393-396.
- (1923b.) A revision of the west North American species of *Callophyllis*. Univ. Calif. Publ. Bot. 10:397-401.
- (1932). *Macrocystis* and its holdfasts. Univ. Calif. Publ. Bot. 16:445-492, pls. 33-48.

- (1940). *Fucus cordatus* Turner. Proc. Nat. Acad. Sci. 26(11):643-651, 2 figs.
- Setchell, W. A. and N. L. Gardner (1903). Algae of northwestern America. Univ. Calif. Publ. Bot. 1:165-418, pls. 17-27.
- (1919). The marine algae of the Pacific Coast of North America. Pt. 1, Myxophyceae. Univ. Calif. Publ. Bot., 8:1-138, 8 pls.
- (1920a). Phycological contributions I. Univ. Calif. Publ. Bot. 7:279-324, pls. 21-31.
- (1920b). The marine algae of the Pacific Coast of North America. Pt. II. Chlorophyceae. Univ. Calif. Publ. Bot. 8(2):139-375, pls. 9-33.
- (1922a). Phycological contributions, II. New species of *Myrionema*. Univ. Calif. Publ. Bot. 7:334-352, pls. 32-34.
- (1922b). Phycological contributions, III. New species of *Compsonema*. Univ. Calif. Publ. Bot. 7:353-376, pls. 35-39.
- (1922c). Phycological contributions, IV. New species of *Hecatonema*. Univ. Calif. Publ. Bot. 7:377-384, 2 pls.
- (1922d). Phycological contributions, V. New species of *Pylaiella* and *Streblonema*. Univ. Calif. Publ. Bot. 7:385-402, pls. 42-44.
- (1922e). Phycological contributions, VI. New species of *Ectocarpus*. Univ. Calif. Publ. Bot. 7:403-426, pls. 45-49.
- (1924a). Phycological contributions, VII. Univ. Calif. Publ. Bot. 13:1-13.
- (1924b.) Expedition of the California Academy of Sciences to the Gulf of California in 1921. The marine algae. Proc. Calif. Acad. Sci., 4th Ser., 12:695-949, 77 pls.
- (1925). The Marine algae of the Pacific Coast of North America. Pt. III. Melanophyceae. Univ. Calif. Publ. Bot. 8(3):383-898, pls. 34-107.
- (1930). Marine algae of the Revillagigedo Islands Expedition in 1925. Proc. Calif. Acad. Sci., Ser. iv, 19:109-215, pls. 4-15.
- (1933). A preliminary survey of *Gigartina*, with special reference to its Pacific North American species. Univ. Calif. Publ. Bot. 17(10):255-340, pls. 46-65.
- (1937). *Iridophycus* in the northern hemisphere. Proc. Nat. Acad. Sci. 23(3):169-174.
- Setchell, W. A. and L. R. Mason (1943). New or little known crustaceous corallines of Pacific North America. Proc. Nat. Acad. Sci. 29:92-97.
- Shannon, E. L. and L. C. Altman (1930). Growth in *Codium mucronatum*. Puget Sound Biol. Sta. Publ. 7:391-392.
- Silva, P. C. (1951). The genus *Codium* in California with observations on the structure of the walls of the utricles. Univ. Calif. Publ. Bot. 25(2):79-114, pls. 1-6, 32 figs.
- (1952). A review of nomenclatural conservation in the algae from the point of view of the type method. Univ. Calif. Publ. Bot. 25(4):241-324.
- (1953). The identity of certain Fuci of Esper. Wasmann Jour. Biol. 11(2):221-232.
- (1955). The eighth International Botanical Congress. Phyc. News Bull. (8)24:9-16.
- (1957). Notes on Pacific Coast marine algae. Madroña 14(2):41-51.
- Silva, P. C. and A. P. Cleary (1954). The structure and reproduction of the red alga, *Platysiphonia*. Amer. Jour. Bot. 41:251-260, 37 figs.
- Smith, G. M. (1933). The fresh-water algae of the United States. 1st Ed. McGraw-Hill, New York. xi + 716 pages, 449 figs.
- (1942). Notes on some brown algae from the Monterey Peninsula, California. Amer. Jour. Bot. 29:645-653, 13 figs.
- (1944). Marine algae of the Monterey Peninsula, California. Stanford Univ. Press. ix + 622 pages, incl. 98 pls.
- (1950). The fresh-water algae of the United States. 2nd ed. McGraw Hill, New York. vii + 719 pages, 559 figs.
- Smith, G. M. and G. J. Hollenberg (1943). On some Rhodophyceae from the Monterey Peninsula, California. Amer. Jour. Bot. 30:211-222, 30 figs.

- Sparling, S. R. (1956). Structure and reproduction of some members of the Rhodymeniaceae. Summary Doctoral Dissertation, Univ. Calif. (Botany) 1956: 1-4.
- (1957). Structure and reproduction of some members of the Rhodymeniaceae. Univ. Calif. Publ. Bot. (In press).
- Stockmayer, S. (1890). Ueber die Algengattung *Rhizoclonium*. Verhandl. der k.-k. zool.-bot. Ges. Wien. 40:571-586, figs. 1-27.
- Strömfelt, H. F. G. (1886). Om algvegetationen vid Islands kuster. Akademisk afhandling. 89 pages, 3 pls. Göteborg.
- Sturch, H. H. (1926). *Choreocolax Polysiphoniae*, Reinsch. Ann. Bot. 40:585-605, 15 figs.
- Taylor, W. R. (1937). Marine algae of the northeastern coast of North America. Univ. Mich. Studies Sci. Series 13. iv + 427 pages, 60 pls. Ann Arbor.
- (1945). Pacific marine algae of the Allan Hancock Expeditions to the Galapagos Islands. Allan Hancock Pac. Expeds. 12. ix + 528 pages, incl. 100 pls.
- Teodoresco, E. C. (1905). Organisation et développement du *Dunaliella*, nouveau genre de Volvocacée-Polyblepharidée. Beih. Bot. Centralbl. 18:215-232, 5 figs., 2 pls.
- Tilden, J. E. (1894-1902). American algae. Centuries I-VI. St. Paul, 1894-1902.
- Turner, D. (1808). Fuci. Vol. 1, pp. 1-164, pls. 1-71. Londini.
- (1809). Fuci. Vol. 2, pp. 1-162, pls. 72-134. Londini.
- (1811). Fuci. Vol. 3, pp. 1-148, pls. 135-196. Londini.
- (1818). Fuci. Vol. 4, pp. 1-152 + 1-7 (General Index), pls. 197-258. Londini.
- Twiss, W. C. (1911). *Erythrophyllum delesserioides* J. Ag. Univ. Calif. Publ. Bot. 4:159-177, pls. 21-24.
- Wagner, F. S. (1954). Contributions to the morphology of the Delesseriaceae. Univ. Calif. Publ. Bot. 27(5):279-346, 290 figs.
- Wailes, G. H. (1939). Dinoflagellina. Can. Pac. Fauna 1: pp. 11-45, figs. 25-138.
- Wittrock, V. B. (1866). Försök till en monographi öfver algsläktet *Monostroma*. Thesis, Uppsala. 66 pages, 4 pls. Printed in Stockholm.
- Womersley, H. B. S. (1954). The species of *Macrocystis* with special reference to those on southern Australian coasts. Univ. Calif. Publ. Bot. 27(2):109-132, pls. 1-8, 1 map.
- Yendo, K. (1902a). Corallinae verae of Port Renfrew. Minn. Bot. Studies 2(40):711-722, pls. 51-56.
- (1902b). Corallinae verae Japonicae. Coll. Sci., Tokyo Imp. Univ. 16(3):1-36, 7 pls.
- (1902c). Enumeration of corallinaceous algae hitherto known from Japan. Bot. Mag. Tokyo, 16:185-196.
- (1903). Three marine species of *Ecballocystis*. Bot. Mag. Tokyo, 17:199-206, 1 pl.
- (1905a). Preliminary list of Japanese Fucaceae. Bot. Mag. Tokyo 19:158.
- (1905b). A revised list of Corallinae. Jour. Coll. Sci., Tokyo Imp. Univ. 2(12): 1-46.
- (1907). Fucaceae of Japan. Jour. College Sci., Tokyo Imp. Univ. 21(12):1-174, 18 pls.
- (1919). A monograph on the genus *Alaria*. Jour. Coll. Sci. Imp. Univ. Tokyo, Vol. 43, Art. 1, pp. 1-145, pls. 1-19.
- Zanardini, G. A. M. (1847). Notizie intorno alle cellulari marine delle lagune e de' litoral di Venezia. 88 pages, 4 pls. Venice.

INDEX TO LOCAL PLACE NAMES

- American Camp Beach, 73, 79, 82, 83, 90, 92, 139, 141, 145, 174, 179, 182, 183, 197, 224, 227, 243.
 Amphitrite Point, 38, 55, 56, 64, 89, 98, 100, 102, 103, 108-111, 122, 125, 128, 129, 145, 156, 159, 160, 163-165, 176, 187, 189, 192, 193, 196-198, 208, 211, 213, 221, 228, 230-232, 235, 240, 241, 243.
 Anacortes, 103.
 Andrews, B., 123, 190, 191.
 Argyle, 81, 83, 212, 232, 236.
 Argyle Lagoon, 34, 35, 43, 47, 49, 123, 246.
 Arbutus Point, 141.
- Ballard Beach, 40, 41, 85, 90, 97, 129, 167, 176, 179, 186, 188, 236, 242.
 Banks I., 123, 190.
 Barkley Sound, 37, 40, 68, 212, 244.
 Bazan B., 45.
 Beacon Hill, 35, 36, 40, 45, 57, 59, 65, 82, 84, 90, 94, 100, 105, 110, 113, 115, 131, 141, 149, 157, 182, 214, 228.
 Bell I., 52, 134.
 Bellingham, 113, 114, 117, 233.
 Booth B., 123.
 Bowers Is., 195.
 Brandon Is., 62.
 British Columbia, 231.
 Brockton Point, 82, 85, 89, 105, 108, 198, 222, 243.
 Brown I., 36, 60, 63, 124, 125, 127, 129, 134, 141, 147, 153, 161, 174-177, 180, 195, 200, 203, 205-208, 210, 213, 216, 217, 235, 243.
- Buccaneer B., 123.
 Burrard Inlet, 81, 83, 84.
- Calvert I., 147, 177, 190, 191, 198.
 Camano I., 43.
 Campbell R., 118, 120.
 Canoe I., 83, 84, 100, 102, 124, 131, 133, 134, 137, 138, 145, 148, 162, 167, 170-172, 175-178, 181, 184, 186, 192, 193, 198, 200, 202, 204-206, 219, 221-223, 225, 228, 229, 237, 238, 246.
 Cape Flattery, 59, 87, 93-95, 108, 135, 136, 199, 229-231, 233.
 Cape Lazo, 57, 130, 147, 169, 186, 242, 244.
 Cattle Point, 90, 95, 115, 117, 119, 120, 140, 161, 167, 192, 196, 203, 206, 229, 230, 232, 243, 245.
 Chanal Reef, 212.
 Channel Rocks, 56, 58, 82, 85, 95, 96, 99, 119, 120, 144, 147, 150, 186, 190, 191, 234.
 Chuckanut Quarry, 37.
 Clayoquot Sound, 77, 88, 92, 103, 106, 122, 128, 142, 195.
 Colquitz R., 36, 45, 48, 49.
- Comox, 38-40, 42, 45, 54, 57, 79, 82, 89, 97, 100, 101, 110, 113, 119, 123, 128, 129, 131, 144, 159, 160, 161, 164, 166, 169, 176, 179, 181, 186, 190, 198, 199, 214, 222, 225, 226, 228, 235-237, 242, 243.
 Cordova B., 147, 166, 169, 170, 177, 179, 186, 187, 192, 193, 214, 225, 237, 244.
 Coupeville, 42, 68, 128-130.
 Cowlitz B., 178, 179, 192, 222.
 Crescent B., 138, 170, 177, 182, 198, 216, 219, 228, 242.
 Crescent Beach, 147, 222.
- Deep B., 123.
 Deer Harbor, 45, 82, 100, 176, 177, 194, 198, 219, 228, 231.
 Deer I., 78, 87, 89, 90, 97, 99, 103, 105, 106, 108-110, 142, 161, 243, 245.
 Departure B., 36-42, 44, 45, 48-50, 62, 64, 66, 67, 73, 77, 82, 89, 92, 94, 97, 100, 101, 105, 110, 112-117, 123, 129-131, 139, 141, 142, 144, 147, 149, 157, 159, 162, 166, 167, 171, 173, 176, 177, 179-181, 183, 186, 187, 191-193, 195, 198, 203, 206, 210, 212-214, 222, 224-226, 228-232, 234-237, 240, 242, 243, 245.
 Dinner I., 220, 238.
 Dinner Point, 42, 45.
 Dodger Channel, 106.
 Dungeness, 169, 176, 226, 240.
 Dunsmuir Is., 86.
- Eagle Point, 65, 74, 102, 158, 192, 228.
 East Sound, 40, 44, 53, 66, 75, 76, 78, 79, 96, 102, 112, 113, 141, 142, 150, 155, 157, 162, 181, 182, 186, 199, 209.
 Edmonds, 162, 164, 175, 189, 192, 198, 212.
 English Camp, 62, 83.
 Esquimalt, 37, 39-42, 44, 45, 48, 50, 56-59, 64, 66, 68, 70, 81, 82, 84, 85, 89, 90, 92, 93, 96, 97, 99, 100, 102, 103, 105, 106, 108-111, 113, 114, 117, 118, 123, 130, 144, 147, 159-161, 166, 167, 169, 170, 175, 176, 179, 181, 183, 187, 189, 190, 195-198, 201, 203, 204, 207-209, 211-214, 216, 218, 221, 225, 226, 232-237, 240, 241, 243, 244.
- Fairhaven, 32, 88, 96, 112, 113, 166, 189.
 False B., 31, 40, 60, 65, 79, 80, 82, 84, 86-88, 91, 99, 100, 114, 129, 131, 135, 141, 142, 144, 147, 148, 152, 161, 168-170, 175, 176, 178-181, 186, 190-192, 194-198, 204, 208, 209, 213, 214, 222, 224, 226-229, 238, 240-244.
 False Narrows, 243.
 Fort Lawton, 186.
 Fort Nisqually, 186.

- Friday Harbor, 31, 32, 34, 35, 39, 41, 43, 44, 47, 51, 52, 57-60, 63-65, 72, 75, 79, 82, 85, 87, 89, 92-94, 96, 97, 100-102, 105, 109, 110, 116, 119, 123, 124, 127, 128, 130, 133, 143, 147, 160-162, 167, 169-172, 175-180, 186-188, 192, 193, 198, 200, 201, 203-210, 212, 213, 217-223, 225-230, 234, 235, 237-239, 244.
 Garrison B., 182.
 Golden Gardens, 71, 90, 142, 146, 164, 168-171, 186, 189, 199, 209, 211, 212, 222-224, 227, 232.
 Gonzales Point, 57, 80.
 Goose I., 31, 36, 47, 79, 89, 92, 100, 160, 169, 176, 184, 191, 195, 197, 205, 214, 224, 226, 243, 245.
 Gordon Head, 106, 111, 123, 166, 186, 214, 221, 235.
 Griffin B., 41, 74, 81, 115, 138, 191, 201, 237.
 Griffin Bay Lagoon, 46.
 Hazardous Cove, 102, 215.
 Hein Bank, 74, 133, 146, 162, 164, 172, 177, 184, 194, 240.
 Henry I., 229, 232, 236, 242.
 Hog I., 137.
 Hood Canal, 40, 123.
 Hope I., 69, 98, 99, 100, 103, 105, 107-109, 111, 122, 132, 139, 169, 173, 190, 205, 225, 229.
 Hopetown Passage, 84, 100, 170.
 Horseshoe B., 38.
 Horswell Channel, 82, 100, 120, 121, 144, 166, 176, 186, 190, 197, 198, 240, 241.
 Iceberg Point, 146, 178, 180, 181, 228.
 Idlewild, 35, 45.
 Indian Cove, 84, 102, 126, 168, 192, 224, 238.
 Jackson B., 183.
 James I., 162, 168-170, 178, 184, 186, 192, 194, 198, 222, 224, 225, 237, 238.
 Jeckyll Lagoon, 38, 123, 246.
 Juan de Fuca Strait, 48, 50, 54, 66, 70, 93, 96, 101, 103, 105, 107, 118, 179, 186, 195, 196, 198, 204, 207, 208, 215, 220, 243, 244.
 Kanaka B., 35, 44, 57, 72, 82-84, 103, 113, 128, 133, 141, 145, 151-153, 166, 170, 175, 181-183, 188, 191-193, 205, 206, 208, 209, 213, 218, 222, 235-237, 245.
 Keyport, 210.
 Kitsilano, 45.
 Klucksiwi R., 85, 87, 89, 91, 92, 97, 110, 111, 145, 176, 177, 179, 195, 197, 245.
 Kraan Cove, 103, 105, 108.
 Kvarno I., 59, 62, 66, 103, 110, 176, 199, 220.
 LaConner, 36, 66.
 Ladysmith Harbour, 123.
 Lake Washington Ship Canal, 67.
 Langara I., 66, 215.
 Lincoln Park, 90, 147, 162, 169, 184, 196, 199, 214, 230, 237, 243.
 Little Toquart B., 55, 57, 103, 210.
 Long Beach, 140.
 Long I., 138.
 Lopez I., 147.
 Lopez Pass, 145, 162, 167-170, 172, 175, 178, 179, 181, 184, 192, 194, 195, 198-200, 205, 213, 220, 222-224, 226, 228.
 Mackaye Harbor, 141, 168, 170, 176, 178, 207, 222, 226, 228, 237, 238.
 Masset, 87, 195.
 Mats-Mats B., 147, 186.
 Mayne I., 37, 38, 41, 42, 45, 49, 65, 66, 78, 84, 89, 113, 114, 115, 119, 123, 127, 129, 131, 142, 145, 164, 166, 176, 186, 191, 212, 214, 228, 240, 242, 243.
 Mazzaredo Is., 84, 111, 127, 129, 132, 134, 141, 148, 149, 152, 155, 156, 168, 170, 191, 196, 200, 208, 217, 222, 237, 240.
 McConnell I., 42.
 Mill B., 43.
 Minnesota Reef, 47, 79, 80, 82, 84, 87, 89, 90, 97, 102, 108, 129, 137, 147, 166, 177, 186, 195, 197, 208, 235, 241-243.
 Mitchell B., 188, 226.
 Mosquito Pass, 177, 186, 200, 228, 229, 238.
 Muir Creek, 63, 80, 144, 156, 182, 197, 217, 243.
 Mukkaw B., 57, 62, 67, 79, 80, 89, 90, 98, 124, 126, 128, 131, 132, 134, 139-143, 145, 146, 149, 160, 162, 164, 166, 168-172, 175, 177, 182, 185, 186, 189, 196, 198, 200, 204, 210, 211, 214, 216, 219, 220, 224, 226, 236, 238, 239-241, 243.
 Mummy Rocks, 170, 177, 186, 198, 222, 226, 228, 237.
 Nanaimo, 39, 53, 118, 123, 147, 157, 182, 207, 214.
 Nanoose B., 123.
 Neah B., 39-41, 43, 44, 47, 52-57, 61, 64, 65, 67, 68, 71-73, 76, 77, 80, 81, 84, 87, 90, 96, 98-100, 103, 105-108, 110, 111, 114, 118, 122, 123, 125, 126, 128-131, 137, 139, 141, 144, 146-148, 159-161, 166, 168-171, 173, 175-180, 186, 187, 191, 192, 195, 197, 205, 208, 210, 211, 213-215, 217, 218, 221-225, 228, 229, 231, 233, 234, 236, 237, 240, 241, 243, 245.
 Nootka, 213.
 Nootka Sound, 64, 111, 195, 199, 241.
 North B., 82, 99, 165, 220.
 Northern Washington, 233.
 Oak B., 45, 51, 81, 83-85, 89, 96, 97, 101, 109, 214.
 Obstruction I., 220.
 Orcas I., 33, 41, 56, 66, 85, 126, 127, 130, 142, 145, 155, 180, 203, 232, 233.
 Oysterville, 123.

- Page Lagoon, 92, 206, 210, 213, 228, 230, 237.
 Paradise Cove, 146, 162, 192, 193, 223.
 Parker Reef, 102, 138, 162, 170, 177, 178, 184, 193-195, 198, 208, 216, 220, 222, 226, 228, 231, 240.
 Parksville, 198.
 Parry B., 141, 214, 218.
 Parsons Spit, 80.
 Pearse Is., 214.
 Peavine Pass, 81, 84, 108, 124-126, 133, 134, 137, 138, 148, 162, 167, 171, 177, 178, 184, 186, 194, 200, 203, 205, 206, 209, 218, 219, 222, 225, 237, 238.
 Pedder Inlet, 48.
 Penn Cove, 46, 86, 166.
 Pleasant Beach, 123, 126, 128, 159, 193, 203, 218, 220, 232.
 Point Caution, 40, 70, 79, 84, 114, 127, 131, 138, 142, 144, 145, 160, 161, 187, 214, 242.
 Point Defiance, 120, 121, 145, 193, 218-220, 222, 223, 232.
 Point Holmes, 89, 111, 131, 141, 142, 144, 162, 166, 176, 186, 198, 213, 216, 222, 224, 225, 232, 235, 242, 243.
 Point No Point, 98, 111, 154, 155, 158, 179.
 Point Roberts, 198, 211, 232, 234, 235, 241, 243.
 Port Angeles, 106, 133, 159, 244, 246.
 Port Ludlow, 56, 58, 64, 99, 203, 211.
 Port Neville, 97, 225.
 Port Orchard, 96, 105, 138, 166, 198, 221, 225, 246.
 Port Renfrew, 32, 34, 36, 37, 40, 45, 50, 54, 56, 57, 59, 61, 64-66, 68, 70, 76, 78, 80, 81, 84, 87, 89, 90, 92, 95, 99, 100, 103-109, 111, 116, 122, 123, 125, 126, 129, 130, 142-145, 149-153, 155-162, 166, 169, 170, 173, 175, 177, 179, 180, 182, 183, 186, 187, 190, 195, 198, 201-204, 212-214, 216, 218, 225, 226, 231, 234, 235, 238, 240-244.
 Port Townsend, 34, 57, 64, 82, 99, 114, 117, 120, 130, 138, 159, 185-187, 198, 207, 208, 221, 228, 244, 246.
 Prescott Passage, 106.
 Puget Sound, 35-39, 43, 44, 50, 52, 56, 59, 62, 66, 67, 70, 82, 84, 87-90, 92-100, 103, 105, 110, 111, 114, 116, 121, 123, 132, 137, 141, 144, 147, 148, 153, 157, 161, 163-165, 167, 174-176, 181, 185, 190, 191, 195, 197, 198, 201, 203-206, 209-213, 215, 217, 218, 224, 225, 227, 228, 235, 239, 241, 243, 244.
 Qualicum B., 42, 66, 77-79, 82, 137, 147, 198, 228, 230, 233, 234, 243.
 Quatsino Sound, 35, 44, 106, 161, 243.
 Queen Charlotte Is., 45, 56, 57, 73, 79, 89, 105, 123, 142, 198, 207, 209, 218, 242.
 Queen Charlotte Sound, 228.
 Rebecca Spit, 123.
 Roche Harbor, 44, 49, 93, 100, 109, 110, 175, 178, 222, 232, 235, 238.
 Rocky B., 78, 87, 90, 123, 147, 175, 177, 180, 190, 195, 213.
 Rosario Beach, 77, 84, 118.
 Ruby Beach, 155.
 Sackman Point, 62, 116.
 Salmon Bank, 138, 146, 163, 164, 168-172, 175, 176, 178, 179, 182, 184, 192-194, 198, 200, 203, 205, 207, 211, 213, 214, 219, 220, 223, 226, 228, 237, 238.
 Sandstone Creek, 44, 87, 147, 159, 165, 166, 168, 169, 173, 176, 179, 180, 183, 198, 203, 214, 216, 220, 224, 225, 240, 243.
 San Juan County, 143, 229.
 San Juan I., 31, 36, 37, 40, 45, 46, 48, 50-52, 56, 58, 72, 78, 79, 82-84, 89, 92, 96, 101-103, 118, 129, 130, 136-138, 144, 145, 147, 149-151, 158, 161, 166, 167, 175, 181, 183, 184, 187, 190, 191, 195, 197, 203, 217, 220, 232, 235, 241, 243, 244, 246.
 San Juan Is., 81, 83, 117.
 Seattle, 69, 89, 114, 115, 118-120, 126, 129, 131, 138, 166, 196, 198, 202, 204, 209, 211, 218, 219, 229.
 Second Beach, 89, 144, 183, 214.
 Shaw I., 81, 84, 91, 124-126, 134, 153, 170, 171, 177, 204, 206, 235.
 Sidney, 35-37, 39-42, 45, 46, 48, 52, 56, 59, 66, 68, 78, 80, 82, 84, 87-89, 91, 94, 96, 97, 100, 105, 113-115, 123, 127, 129-131, 142, 144, 154, 156, 160, 164, 166, 176, 178, 186, 187, 195-198, 203, 209, 212-214, 222, 232, 236, 243.
 Sidney Spit, 40, 182, 186.
 Smith I., 81, 87, 123, 131, 141, 142, 164, 169-171, 178, 183, 184, 191, 193, 198, 214, 222, 226, 227, 237-240, 243, 245.
 Snakalum Point, 39.
 Sooke, 34, 41, 57, 64, 65, 80, 96, 103, 106, 110, 111, 118, 120, 123, 128, 129, 141, 144, 145, 150, 152, 158, 160, 161, 166, 179, 187, 191, 195, 196, 213, 225, 240, 243.
 Spider I., 225, 243.
 Stanley Park, 100, 108, 177, 186.
 Strait of Georgia, 40, 94, 97, 102, 110, 114, 118.
 Striae Point, 80, 98, 108, 123, 146, 147.
 Sucia Is., 35, 40, 82.
 Table I., 110, 128, 156, 175, 187, 190, 225.
 Tacoma, 76, 95, 97, 175, 192, 201, 205.
 Ten Mile Point, 166, 183.
 Thomas Point, 84, 90, 97, 106, 147, 197.
 Tofino, 105, 111.
 Tokeland, 123.
 Tracyton, 38, 39, 42, 44, 45, 63, 70, 77, 100, 102, 114, 115, 119, 120, 148, 161, 162, 176, 181, 182, 185-188, 199, 210, 212, 214, 232, 235.
 Turn I., 34, 52, 63, 81, 131, 133, 134, 137, 138, 169, 172, 178, 194, 208, 210, 222, 225, 226, 228, 232, 236, 240, 243, 244.

Turn Point, 65, 80, 87, 239.

Turn Rock, 152, 153, 175, 208, 213, 231, 232, 235.

Ucluelet, 36-38, 40-42, 45, 53-58, 62, 65, 66, 68, 78, 82-84, 88, 89, 92, 94, 97, 98, 103, 105-107, 113, 115, 116, 119, 122, 123, 125, 128, 140, 142, 143, 145, 154, 157, 160, 163-166, 170, 173, 176, 180, 184, 188, 190, 193, 195, 196, 199, 206, 208, 211, 216, 220, 225, 228, 232, 238, 240-243.

Upright Head, 35.

Vancouver I., 33, 39, 44, 53, 54, 57, 60, 61, 74, 78, 85, 86, 94, 96, 122, 131, 134, 136, 139, 147, 154, 156, 157, 165, 167, 182, 188, 191, 194, 198, 218, 221, 229-231, 233, 234, 239, 244.

Victoria, 35-37, 40-42, 48, 52, 53, 57, 62, 64, 66-68, 70-73, 75-77, 80, 82, 84, 86, 87, 92, 97, 99, 100, 103, 106, 108, 111-114, 116-118, 123, 126-132, 137, 140-142, 144, 147, 154, 157, 160, 161, 165, 166, 169, 170, 173, 175, 176, 178, 179, 183, 184, 186, 187, 189-191, 195-198, 201-203, 208, 213, 214, 216, 218, 221, 224, 225, 230, 232, 233, 235-238, 240-245.

Waadah I., 36, 45, 56, 61, 90, 105, 107, 122, 132, 139, 140, 143, 145, 146, 160, 162, 165, 169, 173, 195, 196, 208, 214, 218, 220, 224, 225, 241.

Waldron I., 32, 102, 109, 237.

Wasp Is., 191.

Welcome Harbour, 106.

West Beach, 57, 65, 74, 82, 124, 132, 135, 138, 141, 145-147, 160, 162, 164, 166, 168-171, 175, 178, 179, 182, 192, 194, 196, 198, 202-205, 207, 209, 211, 214, 216, 219-221, 223-226, 228, 229, 231, 232, 237, 238, 240, 241, 243-245.

West Sound, 82, 170, 176, 178, 179, 203, 205, 221, 222, 224, 237, 238.

Whidbey I., 32, 34-36, 39-44, 46, 48-52, 57-60, 64, 65, 67-69, 73-82, 84, 86-89, 91-96, 98-100, 102, 103, 105, 106, 108, 110-113, 115, 118, 120, 123, 126-132, 135, 137, 138, 140-142, 144, 145, 147-154, 158-162, 164, 166-171, 174-179, 181-183, 185-193, 195, 196, 198, 201, 203-208, 211-214, 216, 220, 221, 224, 225, 227, 228, 231, 232, 234, 235, 237, 238, 240, 241, 243-246.

Whiffin Spit, 65, 82, 97, 100, 103, 106, 169, 179, 182, 195, 209, 220, 239, 242.

White Rock, 123, 242.

Whytecliff, 131, 142, 145.

SYSTEMATIC INDEX

- Acrochaetiaceae 133
Acrochaetium 133
 A. desmarcesiae 133
 A. erythrophyllum 133
 A. macounii 134
 A. pacificum 134
 A. rhizoideum 52, 134
 A. subimmersum 135
 A. vagum 135
 A. variabile 135
 **Aegira virescens* 78
Aeodes 163
 A. gardneri 163
 *A. nitidissima 163, 164
Agardhiella 176, 211
 A. coulteri 176
 *A. tenera 176
Agarum 101
 A. cribrosum 101
 A. fimbriatum 102, 134
 *A. turneri 101
Ahnfeltia 149, 152, 182
 A. concinna 182
 *A. gigartinoides 182
 A. plicata 183
Alaria 108
 *A. curtipes 108
 *A. grandifolia 110
 A. marginata 108
 *A. marginata f. nana 108
 A. nana 108
 *A. pylaii 109
 *A. tenuifolia 109
 A. tenuifolia f. *amplior* 109
 A. tenuifolia f. *tenuifolia* 72, 109
 *A. valida 108, 110
 A. valida f. *longipes* 110
 A. valida f. *valida* 110
 Alariaceae 107
 **Amphiroa californica* 153
 *A. aspergillum f. *nana* 157
 *A. cretacea f. *tasmanica* 155
Amplisiphonia 239
 A. pacifica 239
 **Anatheca furcata* 177
Antithamnion 200
 *A. americanum 202
 *A. boreale 202
 A. defectum 200
 A. densiusculum 201
 A. floccosum 201
 *A. floccosum var. *pacificum* 203
 A. glanduliferum 201
 A. kylinii 202
 A. nigricans 202
 A. occidentale 202
 A. pacificum 203
 *A. pylaisaei 202
 *A. pylaisaei f. *norvegica* 202
 A. subulatum 204
 *A. subulatum 201
 A. uncinatum 204
 **Apoglossum decipiens* 220
 **Asparagopsis hamifera* 140
 **Asteromonas gracilis* 31
Audouinella 138
 A. membranacea 138
Bangia 126
 *B. atropurpurea f. *fuscopurpurea* 126
 B. fuscopurpurea 126
 B. tenuis 127
 Bangiaceae 125
 Bangiales 125
 Bangiophycidae 124
Blidingia 36
 *B. minima 37
 B. minima var. *minima* 36
 B. minima var. *subsalsa* 37
Bonnemaisonia 140, 200
 *B. californica 140
 *B. hamifera 140
 B. nootkana 140
 Bonnemaisoniaceae 140
 **Bossea californica* 154
 *B. corymbifera 154
 *B. dichotoma 154
 *B. frondifera 154
 *B. plumosa 155
Bossiella 152, 153, 239
 B. californica 153
 B. corymbifera 154
 B. dichotoma 154
 B. plumosa 155
 **Botryocarpum platycarpum* 225
Botryocladia 194
 B. pseudodichotoma 194
Botryoglossum 226, 227
 B. farlowianum 226
Branchioglossum 217
 B. woodii 217
 Bryopsidaceae 62
Bryopsis 62
 B. corticulans 62
 B. hypnoides 62
 B. plumosa 63
Calliarthron 151, 157, 216, 239
 C. pinulatum 157
 C. regenerans 158
 C. schmittii 158
Callithamnion 206
 C. acutum 206
 *C. americanum 202
 *C. arbuscula var. *pacifica* 207
 *C. baileyi 207
 C. biserialatum 206
 C. bisporum 207
 *C. floccosum var. *pacificum* 203

*Denotes synonym.

- C. laxum* 207
 **C. pikeanum* 208
C. pikeanum var. *pacificum* 207
C. pikeanum var. *pikeanum* 208
 **C. subulatum* 204
 **C. thujoideum* 209
Callocolax 172
C. fungiformis 172
C. globulosis 172
 **C. neglectus* 172
Callophyllis 168
C. crenulata 168
C. edentata 168, 172
C. firma 169
 **C. fureata* 168
 **C. fureata* f. *dissecta* 168
C. flabellulata 170, 172
 **C. flabellulata* 171
C. heanophylla 170
C. marginifructa 171
C. megalocarpa 171
C. thompsonii 172
 **Callymenia oblongifructa* 166
 **C. ornata* 167
 **C. phyllophora* 177
 **C. phyllophora* f. *orbicularis* 177
 **C. reniformis* 167, 169
 **Castagnea divaricata* 79
 Ceramiaceae 200
 Ceramiales 200
Ceramium 208, 210
C. californicum 210
C. codicola 211
 **C. diaphanum* 210
C. pacificum 211
C. rubrum 212
 **C. rubrum* var. *pacificum* 211
 **C. rubrum* f. *radians* 212
 **C. rubrum* f. *strictum* 212
C. strictum 212
C. washingtoniense 213
 **Ceratothamnion pikeanum* 208
 **C. pikeanum* f. *laxum* 207
 Chaetangiaceae 139
Chaetomorpha 52
C. canabina 52
C. tenuissima 52
 **C. tortuosa* 49
 Chaetophoraceae 33
 Champiaceae 199
 **Chantrasia hallandica* 136
 **C. macounii* 134
 **C. moniliformis* 136
 **C. secundata* 137
 **Cheilosporum californicum* 154
 **C. macmillani* 155
 **Chlanidophora abyssicola* 74
 Chlorangiaceae 31
Chlorochytrium 59
C. inclusum 59
C. porphyrae 59
 Chlorococcaceae 59
 Chlorococcales 59
 Chlorodendrineae 31
 Chlorophyceae 31
 Chlorophycophyta 31
 **Chondrus affinis* 189
 **C. affine* 189
 **C. canaliculatus* 189
 **C. crispus* 189
Chorda 93
C. filum 93
 **C. lomentaria* 88
 Chordaceae 93
Chordaria 79
 **C. abietina* 80
 **C. andersonii* 79
C. dissessa 79
 Chordariaceae 78
 Chordariales 75
 Choreocolaceae 173
Choreocolax 173
C. polysiphoniae 173
 **Chromastrum arcuatum* 136
 **C. hirsutum* 136
 **C. moniliforme* 136
 **Chrysmenia pseudodichotoma* 194
 **Chylocladia ovalis* 199
 Chrysophycophyta 246
Cladophora 52
C. albida 52
 **C. arcta* 56
 **C. cartilaginea* 57
 **C. chamissonis* 58
 **C. coalita* 57
 **C. columbiana* 55
 **C. diffusa* 54
C. flexuosa 53
C. glaucescens 53
C. gracilis 53
 **C. hutchinsiae* 54
C. hutchinsiae var. *distans* 54
C. hutchinsiae var. *hutchinsiae* 54
 **C. hystrix* 57
C. laetevirens 54
C. microcladioides 55
 **C. saxatilis* 58
 **C. scopaeformis* 57, 58
C. stimpsonii 55
C. trichotoma 55
 Cladophoraceae 47
 Cladophorales 47
 Codiaceae 64
Codiolum 60
C. gregarium 50, 60
C. petroclidis 60
C. pusillum f. *subsessile* 60
Codium 64, 135
 **C. adhaerens* 65
 **C. dimorphum* 65
C. fragile 52, 64, 211
 **C. fragile* f. *californicum* 64
 **C. fragile* f. *novae zelandiae* 64
 **C. mucronatum* 64
 **C. mucronatum* var. *californicum* 64

*Denotes synonym.

- **C. mucronatum* var. *novae zelandiae* 64
C. ritteri 65
C. setchellii 65
 **C. tomentosum* 64
Coilodesme 91
 **C. amplissima* 91
C. bulligera 91
C. californica 91
Collinsiella 31
C. tuberculata 31
Colpomenia 90
 **C. sinuosa* 90
 **C. sinuosa* f. *deformans* 88
C. sinuosa f. *sinuosa* 90
C. sinuosa f. *tuberculata* 90
Compsonema 76
C. sessile 76
C. sporangiiferum 77
Conchocelis 131, 138
C. rosea 138
Constantinea 146
 **C. rosa-marina* 146
C. simplex 146
 **C. sitchensis* 146
C. subulifera 146
Corallina 152, 156
 **C. chilensis* 156
 **C. densa* 156
C. officinalis var. *chilensis* 156
 **C. officinalis* f. *aculeata* 156
 **C. officinalis* f. *multiramosa* 156
 **C. officinalis* f. *pilulifera* 156
 **C. officinalis* f. *robustus* 156
 **C. officinalis* f. *spathulifera* 156
C. pilulifera 156
 **C. pinnatifolia* var. *digitata* 156
C. vancouveriensis 156
Corallinaceae 148
Corynophlaeaceae 77
Costaria 100
C. costata 100
 **C. costata* 101
C. mertensii 101
 **C. reticulata* 104
 **C. turneri* 100
Cruoriaceae 174
Cryptonemia 162
C. borealis 162
C. obovata 163
C. ovalifolia 163
Cryptonemiaceae 161
Cryptonemiales 142
Cryptopleura 225, 227
C. ruprechtiana 225
 **C. ruprechtianum* 224
C. violacea 226
Cryptosiphonia 125, 142
 **C. grayana* 142
C. woodii 142
Cumagloia 139
C. andersonii 139
Cymathere 99
C. triplicata 99
 **Cystoclonium gracilarioides* 176
 **Cystophyllum geminatum* 122
 **C. lepidium* 122
Cystoseira 122, 135
C. geminata 92, 122, 123
Cystoseiraceae 122
 **Dasya plumosa* 227
Dasyaceae 227
Dasyopsis 227
D. plumosa 227
Delesseria 220
 **D. alata* 218
D. decipiens 33, 220
 **D. hypoglossum* var. *arborescens* 220
Delesseriaceae 217
Derbesia 63
D. marina 61, 63
 **D. marina* 64
D. pacifica 63
D. vaucheriaeformis 64
Derbesiaceae 61
Dermatolithon 152
D. dispar 152
Desmarestia 67, 80, 133
 **D. aculeata* 82
 **D. aculeata* f. *media* 83
D. farcta 80
D. foliacea 81
D. herbacea 81
D. intermedia 82
D. latissima 83
D. ligulata 70, 81, 83
 **D. ligulata* 81
 **D. ligulata* f. *herbacea* 81, 84
D. media var. *tenuis* 83, 85
D. munda 72, 84
 **D. tabacoides* 81
D. viridis 85
 **D. viridis* 83
Desmarestiaceae 80
Desmarestiales 80
Dictyoneurum 104
D. californicum 104
Dictyosiphon 92
 **D. chordaria* 92
D. foeniculaceus 92
D. sinicola 92
Dictyosiphonaceae 91
Dictyosiphonales 85
Dictyotaceae 74
Dictyotales 74
Dilsea 145
D. californica 145
 **D. pygmaea* 145
 **Diploderma amplissimum* 127
 **D. variegatum* 132
Dumontiaceae 142
Dunaliella 31
D. salina 31
 **Ecballocystis willeana* 31
Ectocarpaceae 66

*Denotes synonym.

Ectocarpales 66

Ectocarpus 67**E. acutus* 67*E. acutus* var. *acutus* 67*E. acutus* var. *haplogloiae* 67**E. confervoides* 68**E. confervoides* *acmaeophilus* 69**E. confervoides* f. *acuminatus* 67*E. confervoides* f. *confervoides* 68**E. confervoides* f. *corticulatus* 68**E. confervoides* f. *pygmaeus* 71**E. confervoides* f. *typicus* 68, 69**E. confervoides* f. *variabilis* 69*E. corticulatus* 68*E. cylindricus* 69**E. cylindricus* f. *acmaeophilus* 69**E. cylindricus* f. *typicus* 69*E. dimorphus* 69*E. granulatus* 69**E. littoralis* 66*E. mucronatus* 70*E. oviger* 70*E. pygmaeus* 71**E. siliculosus* 68*E. terminalis* 71*E. tomentosus* 71**E. variabilis* 69*Egregia* 111**E. menziesii* 111*E. menziesii* subsp. *menziesii* 111, 132**Eisenia arborea* 97

Elachistaceae 77

Elachistea 77*E. fucicola* 77*Endocladia* 160*E. muricata* 160**E. muricata* f. *compressa* 160**E. muricata* f. *inermis* 160

Endocladaceae 160

Endoderma viride* 33E. viridis* 33*Enteromorpha* 38*E. clathrata* 38*E. compressa* 38**E. crinita* 38**E. erecta* 38**E. intestinalis* 39, 40*E. intestinalis* f. *clavata* 39*E. intestinalis* f. *cylindracea* 39**E. intestinalis* f. *genuina* 39*E. intestinalis* f. *intestinalis* 39*E. intestinalis* f. *maxima* 40*E. linza* 41**E. linza* f. *lanceolata* 41*E. marginata* 41**E. micrococca* 36, 37**E. micrococca* f. *subsalsa* 37**E. minima* 37**E. minima* var. *subsalsa* 37**E. percursa* 45**E. plumosa* 38*E. prolifera* 42**E. prolifera* var. *tubulosa* 43*E. torta* 42*E. tubulosa* 43*Entocladia* 33*E. viridis* 33*Erythrocladia* 125*E. irregularis* 125*E. subintegra* 126*Erythroglossum* 221*E. intermedium* 221**E. woodii* 217*Erythrophyllum* 133, 173*E. delesserioides* 173*Erythrotrichia* 125**E. bertholdii* 125**E. ceramicola* 125*E. kylinii* 125*E. parksii* var. *minor* 125*Eudesme* 78*E. virescens* 78*Euthora* 178*E. fruticulosa* 178*Farlowia* 144*F. compressa* 144*F. mollis* 144*Fauchea* 192*F. fryeana* 192, 193**F. gardneri* 193**F. laciniata* 192*F. laciniata* 192**F. laciniata* f. *pygmaea* 192**F. pygmaea* 193*Fauchecolax* 193*F. attenuata* 193

Floridiophycidae 133

**Fosliella dispar* 152*Fryeella* 193*F. gardneri* 193

Fucaceae 112

Fuciales 112

Fucus 71, 77, 112**F. edentatus* 113*F. edentatus* f. *acutus* 112*F. edentatus* f. *costatus* 112*F. edentatus* f. *divaricatus* 112*F. edentatus* f. *divergens* 113*F. edentatus* f. *edentatus* 113**F. evanescens* 114**F. evanescens* f. *angustus* 112**F. evanescens* f. *cornutus* 117*F. evanescens* f. *evanescens* 114*F. evanescens* f. *flabellatus* 114*F. evanescens* f. *macrocephalus* 114*F. evanescens* f. *magnificus* 115*F. evanescens* f. *nanus* 115*F. evanescens* f. *pergrandis* 116*F. evanescens* f. *robustus* 116*F. evanescens* f. *stellatus* 116**F. fastigiatus* 121**F. furcatus* 118**F. furcatus* f. *abbreviatus* 116

*Denotes synonym.

- **F. furcatus* f. *angustus* 117
 **F. furcatus* f. *contortus* 117
 **F. furcatus* f. *cornutus* 117
 **F. furcatus* f. *elongatus* 118
 **F. furcatus* f. *latifrons* 119
 **F. furcatus* f. *linearis* 119
 **F. furcatus* f. *nigricans* 119
 **F. furcatus* f. *reflexus* 120
 **F. furcatus* f. *rigidus* 120
 **F. furcatus* f. *typicus* 118
 **F. furcatus* f. *variabilis* 120
 **F. gardneri* 118
 F. gardneri f. *abbreviatus* 116
 F. gardneri f. *angustus* 117
 F. gardneri f. *contortus* 117
 F. gardneri f. *cornutus* 117
 F. gardneri f. *elongatus* 118
 F. gardneri f. *gardneri* 118
 F. gardneri f. *latifrons* 119
 F. gardneri f. *linearis* 119
 F. gardneri f. *nigricans* 119
 F. gardneri f. *reflexus* 120
 F. gardneri f. *rigidus* 120
 **F. gardneri* f. *typicus* 118
 F. gardneri f. *variabilis* 120
 **F. inflatus* 113
 **F. inflatus* f. *edentatus* 118
 **F. inflatus* f. *filiformis* 112
 **F. inflatus* f. *linearis* 112
 **F. membranaceus* 121
 F. membranaceus f. *limitatus* 121
 F. membranaceus f. *membranaceus* 121
 **F. vesiculosus* 114
 **F. vesiculosus* var. *evesiculosus* 114
Gastroclonium 199
 G. coulteri 199
 **Gayella constricta* 47
 Gelidiaceae 141
 Gelidiales 141
Gelidium 141
 **G. amansii* 142
 **G. cartilagineum* 141
 G. cartilagineum var. *robustum* 141
 G. crinale 142
Gigartina 184, 215
 G. binghamiae 184
 G. corymbifera 185
 G. cristata 185
 G. exasperata 185
 **G. exasperata* f. *microphylla* 186
 G. latissima 187
 G. mamillosa 187
 **G. mamillosa* f. *cristata* 185
 **G. mamillosa* f. *cristata* subf. *proli-*
 fera 185
 **G. mamillosa* f. *dissecta* 187
 **G. mamillosa* var. *latissima* 187
 **G. mamillosa* f. *subsimplex* 187
 **G. mamillosa* f. *vulgaris* 187
 **G. mollis* 144
 G. papillata 188
 **G. papillata* 187
 **G. papillata* f. *latissima* 187
 **G. radula* 185
 **G. radula* f. *exasperata* 186
 **G. radula* f. *typica* 186
 G. sitchensis 188
 G. stellata 188
 G. unalaschcensis 189
 Gigartinaceae 184
 Gigartinales 174
Gloiopeltis 160
 G. furcata 160
Gloiophloea 139
 G. confusa 139
Gloiosiphonia 158
 G. californica 158
 G. capillaris 159
 **G. capillaris* 158
 G. verticillaris 159
 Gloiosiphoniaceae 158
 **Gobia simplex* 79
Gomontia 61
 **G. bornettii* 61
 **G. caudata* 61
 **G. habrorhiza* 61
 G. polyrhiza 61
 Gomontiaceae 61
Gonimophyllum 227
 G. skottsbergii 227
 Goniotrichaceae 124
 Goniotrichales 124
Goniotrichum 124
 **G. alsidii* 124
 G. cornu-cervi 124
 G. elegans 124
Gracilaria 181
 **G. confervoides* 181
 **G. sjoestedtii* 181
 G. verrucosa 181
 Gracilariaceae 181
Gracilariopsis 181, 211
 G. sjoestedtii 181
Grateloupia 135, 161, 215
 G. californica 161
 **G. cutleriae* 161
 G. pinnata 162
Griffithsia 210
 G. pacifica 210
 **G. schousboei* 210
Gymnogongrus 183
 **G. linearis* 183
 G. norvegicus 183
 G. platyphyllus 183
Halicystis 61, 63
 H. ovalis 61
Halosaccion 194
 **H. fucicola* 194
 H. glandiforme 194
 **H. hydrophora* 194
Halymenia 164
 H. californica 164
 **H. ligulata* 158
Haplogloia 78

*Denotes synonym.

H. andersonii 68, 78, 134
H. kuckuckii 79
Hedophyllum 102
H. sessile 72, 76, 102
H. subsessile 103
Helminthocladiaceae 139
Herposiphonia 238
H. grandis 238
H. rigida 239
H. parva 239
**H. pygmaea* 239
**Heteronema boreale* 222
Heterosiphonia 228
H. densiuscula 228
H. laxa 228
Heterochordaria 80
H. abietina 80
Hildenbrandia 147
H. occidentalis 147
H. prototypus 148
H. rosea 148
Hildenbrandiaceae 147
Holmesia 219
H. californica 219
**Hormiscia grandis* 50
**H. penicilliformis* 50
**H. spaerulifera* 51
**H. tetraciliata* 51
**H. vancouveriana* 51
**H. wormskioldii* 51
**Hormotrichum carmichaelii* 50
**H. speciosum* 50
Hymenena 149, 224, 227
**H. fimbriata* 225
**H. fissa* 225
H. flabelligera 224
**H. fryeana* 224
**H. latissima* 221
H. setchellii 224
**Hypria coulteri* 176
**Ilea fascia* 89
**I. fascia* f. *debilis* 89
**I. fascia* f. *typica* 89
Internoretia 34
I. fryeana 34
Iridaea 59, 190
I. cordata 190
I. coriacea 190
I. heterocarpa 191
**I. laminarioides* 190, 191
**I. laminarioides* f. *cordata* 190
**I. laminarioides* f. *minor* 190
**I. laminarioides* f. *parvula* 191
**I. laminarioides* f. *punicea* 190
**I. laminarioides* f. *typica* 190
**I. membranacea* 190
**I. mertensiana* 175
**I. oblongifruca* 166
I. whidbeyana 191
**Iridophycus cordatum* 190
**I. coriaceum* 190
**I. heterocarpum* 191
**I. whidbeyana* 191

Juncus curstia 241
J. gardneri 241
**J. verruciformis* 241
Kallymenia 166
K. oblongifruca 166
K. ornata 167
K. reniformis 167
Kallymeniaceae 166
Kylinia 136
K. arcuata 136
K. hirsuta 136
K. moniliformis 136
Laminaria 93, 136, 202
**L. andersonii* 97
**L. apoda* 102
**L. bullata* 94
**L. bullata* f. *amplissima* 93
**L. bullata* f. *angusta* 94
**L. bullata* f. *cuneata* 95
**L. bullata* f. *subsimplex* 95
L. complanata 75, 93
**L. cuneifolia* 94
L. cuneifolia f. *amplissima* 93
L. cuneifolia f. *angusta* 94
L. cuneifolia f. *cuneifolia* 94
L. cuneifolia f. *subsimplex* 95
**L. dermatodea* 95
L. ephemera 95
**L. fascia* 89
L. platymeris 95
**L. saccharina* 97
**L. saccharina* f. *complanata* 93
L. saccharina f. *linearis* 96
L. saccharina f. *membranacea* 96
L. saccharina f. *saccharina* 97
L. setchellii 97, 132
L. sinclairii 98
Laminariaceae 93
Laminariales 76, 93
Laurencia 149, 240
**L. pinnatifida* 240
L. spectabilis 240, 241
Leathesia 77
**L. amplissima* 77
L. difformis 77
**Lessonia littoralis* 107
**L. nigrescens* 107
Lessoniaceae 104
Lessoniopsis 107
L. littoralis 107, 202
**Liebmannia* 79
Lithophyllum 152
L. decipiens 152
**L. dispar* 152
**L. farlowii* 153
**L. incrustans* f. *orbiculare* 152
L. lichenare 153
**L. muricatum* 150
L. neofarlowii 153
**L. tumidulum* 152
**L. vancouveriense* 153
L. whidbeyense 153

*Denotes synonym.

- Lithothamnion* 149
L. californicum 149
 **L. conchatum* 151
 **L. marginatum* 149
 **L. mediocre* 149
L. muricatum 150
L. pacificum 150
 **L. parvum* 151
L. phymatodeum 150
 **L. phymatodeum* f. *aquilonium* 150
 **L. phymatodeum* f. *typicum* 150
 **L. reclinatum* 151
Lithothrix 157
L. aspergillum 157
Lola 49
L. lubrica 49
 **Lomentaria ovalis* var. *coulteri* 199
 **L. ovalis* f. *subarticulata* 199
Lophosiphonia 234
L. obscura 234
L. villum 234
 **Loranthophycus californicus* 219
Macrocystis 106
M. integrifolia 106
 **M. pyrifera* 106
Melobesia 148
M. marginata 148
M. mediocris 149
 **M. zosteriolum* f. *mediocris* 149
Membranoptera 218
M. dimorpha 218
M. platyphylla 218
M. tenuis 219
M. weeksiae 219
 **Mesogloia andersonii* 78
 **M. simplex* 79
Microcladia 213
M. borealis 213
 **M. californica* 214
M. coulteri 214
Monostroma 34
M. fractum 34
 **M. fuscum* 35
M. fuscum var. *blythii* 34
M. fuscum f. *fuscum* 35
M. fuscum var. *splendens* 35
 **M. latissimum* 35, 36
 **M. leptodermum* 36
M. ozyspermum 35
 **M. quaternarium* 35, 36
 **M. splendens* 35, 36
M. zostericola 36
Monostromaceae 34
Myelophycus 87
M. intestinale 87
 **Myriogloia andersonii* 78
Myriogramme 223
M. pulchra 223
M. spectabilis 223
Myrionema 75
M. compsonematoides 75
 **M. foecundum* f. *divergens* 76
 **M. foecundum* f. *majus* 76
M. foecundum f. *ramulosum* 75
M. foecundum f. *simplicissimum* 75
M. globosum f. *affine* 75
M. primarium 76
 **M. primarium* f. *acuminatum* 76
M. strangulans 76
 **M. strangulans* 75
Myrionemataceae 75
Nemalion 139
N. helminthoides 139
 **N. lubricum* 139
Nemalionales 133
Nemastomaceae 174
Nereocystis 70, 71, 75, 77, 104, 130, 203
N. luelkeana 104, 204
 **N. priapus* 104
Nienburgia 222
N. borealis 222
Nitophyllum 223
 **N. latissimum* 221
N. mirabile 223
 **N. ruprechtianum* 225
 **N. ruthenicum* 224
 **N. spectabilis* 223, 225
 **N. violaceum* 226
Odonthalia 87, 149, 242
 **O. aleutica* 242
 **O. dentata* 244, 245
O. floccosa 242
 **O. floccosa* f. *comosa* 242
 **O. floccosa* f. *macrantha* 242
 **O. floccosa* f. *typica* 242
O. kamtschatica 244
O. lyallii 244
 **O. semicostata* 245
O. washingtoniensis 245
Opuntiella 177
O. californica 177
 **Orcasia senticulosa* 233
Ostreobium 246
O. quekeltii 246
Pachyarthon 155
P. cretaceum 155
Pelvetia 71, 121
P. fastigiata 121
Pelvetiopsis 122
 **P. limitata* 122
P. limitata f. *limitata* 122
 **P. limitata* f. *typica* 122
Percursaria 45
P. percursa 45
Petalonia 89
 **P. debilis* 89
P. debilis f. *debilis* 89
Petrocelis 174
P. franciscana 60, 174
P. middendorffi 60, 174
Peyssonelia 147
P. pacifica 147
Phaeophila 33

*Denotes synonym.

- P. polymorpha* 33
 Phaeophyceae 66
 Phaeophycophyta 66
 *Phloeospora tortilis 85
 *Phyllitis fascia 89
 Phyllophoraceae 182
Phyllospadix 36, 86, 90, 129, 149
 Phyllosiphonaceae 246
 *Phyllospora menziesii 111
Pikea 143
 P. californica 143
 P. pinnata 143
 **P. nootkana* 143
Platysiphonia 220
 P. clevelandii 220
Platylthamnion 205
 **P. heteromorphum* 206
 **P. heteromorphum* f. *reversum* 205
 **P. heteromorphum* f. *typicum* 206
 P. pectinatum 52, 205
 P. reversum 205
 P. villosum 206
Pleonosporium 208
 P. abyssicola 208
 **P. squarrosus* 209
 P. squarrosus var. *obovatum* 209
 P. squarrosus var. *squarrosus* 209
 P. vancouverianum 209
Pleurophycus 67, 99, 167
 P. gardneri 99
 Plocamiaceae 179
Plocamiocolax 180
 P. pulvinata 180
Plocamium 149, 179
 **P. coccineum* 179
 P. oregonum 179
 P. pacificum 179, 181
 P. tenue 180
 P. violaceum 180
 **Plumaria asplenioides* 215
 **P. californica* 215
 **P. filicina* 216
 **P. hypnoides* 216
 **P. tenuis* 217
 Polyblepharidaceae 31
Polycoryne 222
 P. gardneri 222
Polyneura 221
 P. latissima 221, 223
Polyporolithon 151
 P. conchatum 151
 P. reclinatum 151
 P. parcum 151
Polysiphonia 136, 137, 173, 229
 **P. atrorubescens* 232
 **P. atrorubescens* var. *minor* 232
 **P. bipinnata* 235
 **P. californica* 232
 **P. californica* var. *plumigera* 235
 **P. collinsii* 229
 P. collinsii var. *collinsii* 229
 P. collinsii var. *deliquescent* 229
 P. collinsii var. *luxurians* 230
 **P. dendroidea* 236
 P. macounii 230
 **P. nigrescens* var. *affinis* 232
 **P. pacifica* 231
 P. pacifica var. *determinata* 230
 P. pacifica var. *distans* 230
 P. pacifica var. *disticha* 231
 P. pacifica var. *gracilis* 231
 P. pacifica var. *pacifica* 231
 P. paniculata 232
 **P. pungens* 234
 P. senticulosa 233
 **P. snyderae* 233
 P. snyderae var. *heteromorpha* 233
 P. snyderae var. *snyderae* 233
 **P. subulata* 230
 **P. tenuistriata* 232
 **P. urceolata* 234
 P. urceolata f. *urceolata* 234
 **P. urceolata* var. *senticulosa* 233
 **P. urceolata* f. *typica* 234
Porphyra 127, 138
 P. abyssicola 127
 P. amplissima 127
 **P. laciniata* f. *umbilicalis* 131
 P. lanceolata 59, 128
 P. miniata f. *cuneiformis* 128
 P. naiadum 34, 129
 P. nereocystis 129
 **P. perforata* 130
 **P. perforata* f. *lanceolata* 128
 P. perforata f. *perforata* 130
 P. perforata f. *segregata* 59, 131
 P. variegata 132
 **P. vulgaris* 130
 P. umbilicalis 131, 138
Porphyrella 132
 P. gardneri 132
Porphyropsis 133
 P. coccinea 133
Postelsia 105
 P. palmaeformis 105
Prasinocladus 32
 P. lubricus 32
Prasiola 46, 47
 P. calophylla 46
 P. linearis 46
 P. meridionalis 47
 Prasiolaceae 46
Prionitis 164, 215
 P. lanceolata 164
 P. lyallii 165
 **P. lyallii* var. *densissima* 165
 **P. lyallii* var. *depauperata* 165
 **P. lyallii* var. *dilatata* 165
 **P. lyallii* var. *gladiata* 165
 **P. lyallii* var. *intermedia* 165
 **P. lyallii* var. *lanceolata* 165
 **P. lyallii* var. *normalis* 165
 **P. lyallii* var. *ornata* 165
Pterochondria 237

*Denotes synonym.

- P. woodii* 136, 237
 **Pteridium alatum* 218
 **P. alata* var. *latissima* 218
 **P. serratum* 218
 **P. serratum* f. *platyphyllum* 218
Pterosiphonia 235
 P. arctica 235
 **P. bipinnata* 235
 P. bipinnata var. *bipinnata* 135, 136, 235
 P. bipinnata var. *robusta* 236
 P. dendroidea 236
 P. gracilis 237
 **P. parasitica* 237
 **P. parasitica* f. *borealis* 237
 **P. parasitica* var. *luxurians* 236
 **P. plumula* 238
 **P. woodii* 237
Pterygophora 107, 136, 167, 240
 P. californica 107
Ptilota 215
 P. asplenioides 215
 P. californica 215
 **P. californica* var. *concinna* 215
 P. filicina 215
 P. hypnoides 216
 P. pectinata 217
 P. tenuis 217
Pugetia 167
 **P. firma* 169
 P. fragilissima 167
 **P. fragilissima* 169
Punctaria 86
 P. expansa 86
 P. hesperia 86
 **P. latifolia* 86
 P. orbiculata 86
Punctariaceae 86
Pylaiella 66
 P. littoralis 66
 **P. littoralis* var. *densa* 66
 **P. littoralis* var. *firma* 66
 **P. littoralis* var. *firma* f. *macrocarpa* 66
 **P. littoralis* var. *macrocarpa* 66
 **P. littoralis* var. *opposita* f. *acuta* 66
 **P. littoralis* var. *opposita* f. *rectangulans* 66
 **P. littoralis* var. *opposita* f. *rupicola* 66
 **P. littoralis* var. *opposita* f. *typica* 66
 **P. littoralis* var. *varia* 66
 **P. littoralis* var. *varia* f. *densa* 66
 P. tenella 67
 P. washingtoniensis 67
Ralfsia 73
 **R. deusta* 73
 R. fungiformis 73
 R. pacifica 73
 **R. verrucosa* 73
Ralfsiaceae 73
 **Renfrewia parvula* 95
 **Rhabdonia coulteri* 176
Rhizoclonium 47
 R. implexum 47
 R. kernerii 48
 **R. lubricum* 49
 R. riparium 48
 **R. riparium* f. *implexum* 47, 48
 **R. riparium* var. *polyrhizum* 48
 R. tortuosum 49
Rhodochorton 137
 **R. arcuatum* 136
 **R. desmarestiae* 133
 **R. hirsutum* 136
 **R. macounii* 134
 **R. membranaceum* 138
 **R. moniliforme* 136
 **R. pacificum* 134
 R. penicilliforme 137
 R. purpureum 137
 **R. rhizoideum* 134
 **R. rothii* 137
 **R. subimmersum* 135
 R. tenue 138
 **R. vagum* 135
 **R. variabile* 135
Rhodoglossum 189
 R. affine 189
 R. latissimum 189
Rhodomela 87, 241
 **R. floccosa* 242
 R. larix 241
 **R. lyallii* 244
 R. lycopodioides 242
 **R. lycopodioides* f. *tenuissima* 242
Rhodomelaceae 229
 **Rhodomenia wilkesii* 197
Rhodophyceae 124
Rhodophycophyta 124
Rhodophyllidaceae 178
Rhodymenia 149, 195, 199
 R. californica 195
 **R. corallina* 195
 **R. gardneri* 193
 R. pacifica 196
 **R. palmata* 197
 R. palmata f. *mollis* 196
 R. palmata f. *palmata* 197
 **R. palmetta* 196
 **R. palmettiformis* 196
 R. pertusa 197, 199
 R. stipitata 198
Rhodymeniales 192
Rhodymeniaceae 192
Rhodymeniocolax 199
 R. botryoidea 199
Rosenvingiella 47
 R. constricta 47
Sarcodiotheca 177
 S. furcata 177
 **Sarcophyllis californica* 145, 174
 **S. pygmaea* 145
Sargassaceae 123
Sargassum 123
 **S. kjellmanianum* 123

*Denotes synonym.

- **S. kjellmanianum* f. *muticum* 123
S. muticum 123
Saundersella 79
S. simplex 79
Schizogoniales 46
Schizogonium 46
S. murale f. *uniseriatum* 46
 **Schizoneura quercifolia* 218
 **S. quercifolia* f. *linearis* 218
Schizymenia 59, 174
 **S. coccinea* 163
 **S. dubyi* 174
S. pacifica 174
 **Scinaia furcellata* var. *undulata* 139
Scytosiphon 88
S. bullosus 88
 **S. lomentaria* 88
 **S. lomentaria* f. *cylindricus major* 88
S. lomentaria f. *lomentaria* 88
 **S. lomentaria* f. *typica* 88
Serraticardia 155
S. macmillani 155, 157
Siphonales 61
Solieriaceae 175
Soranthra 86
 **S. ulvoidea* 87
S. ulvoidea f. *difformis* 86
 **S. ulvoidea* f. *typica* 87
S. ulvoidea f. *ulvoidea* 87
Sphacelaria 73
 **S. fusca* 74
S. racemosa 73
 **S. racemosa* var. *arctica* 73
S. subfusca 74
Sphacelariaceae 73
Sphacelariales 73
Spongomorpha 56
S. arcta 56
 **S. arcta* f. *conglutinata* 58
S. coalita 57
 **S. hystrix* 57
S. mertensii 57
 **S. saxatilis* 58
S. saxatilis var. *chamissonis* 58
S. saxatilis var. *saxatilis* 58
S. spinescens 58
Squamariaceae 147
Stenogramme 184
S. californica 184
 **S. interrupta* 184
Stephanoptera 31
S. gracilis 31
Stictyosiphon 85
S. tortilis 85
Streblonema 72
S. aecidioides f. *pacificum* 72
S. desmarestiae 72
S. pacificum 72
S. rugosum 72
 **Striaria attenuata* 85
Striariaceae 85
Syringoderma 74
S. abyssicola 74
 **Taenioma clevelandii* 220
Thalassiophyllum 101
T. clathrus 101
Thuretellopsis 143
T. peggiana 143
Trailliella 200
T. intricata 140, 200
Turnerella 175
T. mertensiana 175
 **T. pacifica* 174, 175
Ulothrix 32
U. flacca 32
U. implexa 33
U. lactevirens 33
Ulotrichaceae 32
Ulotrichales 32
Ulva 43, 76
U. expansa 43
 **U. fasciata* 45
 **U. fasciata* f. *expansa* 43
U. fenestrata 43
U. lactuca 44
 **U. lactuca* var. *latissima* 44
 **U. lactuca* var. *rigida* 45
U. latissima 44
 **U. linza* 41
U. rigida 45
Ulvaceae 38
Urospora 50, 60
U. grandis 50
U. penicilliformis 50
U. sphaerulifera 51
U. tetraciliata 51
U. vancouveriana 51
U. wormskioldii 51
 **Valonia ovalis* 61
Vaucheria 246
V. litoria 246
Vaucheriaceae 246
Vaucheriales 246
Volvocales 31
Volvocineae 31
Weeksia 145
W. frycana 145
Whidbeyella 140
W. cartilaginea 140
Xanthophyceae 246
 **Zanardinula lanceolata* 165
 **Z. lyallii* 165, 166
Zostera 36, 67, 69, 70, 75, 78, 79, 86, 127, 129, 149

GLOSSARY

- accessory pigment*, a non-chlorophyll pigment
- acute*, sharp
- adjacent*, situated near
- adjoined*, lying in contact with
- alternate*, not opposite nor arranged only along one side
- anastomosing*, communicating by cross-connections
- angular*, with divergent parts
- antheridium* (pl. *antheridia*), a male reproductive organ which produces flagellated gametes
- apex* (pl. *apices*), the distal end
- apical*, at or referring to the apex
- apical cell*, a cell situated at the apex of a thallus or its branches and specialized for initiating growth
- apical margin*, the edge of a thallus composed entirely of apical cells
- apiculate*, terminating in a sharp point
- articulated*, jointed
- articulation*, a joint
- assimilating filament*, a superficial filament, the cells of which contain chromatophores
- autotrophic*, capable of manufacturing its own food
- axial filament*, a longitudinal series of cells running through the center of an axis or branch
- axis* (pl. *axes*), the longitudinal portion on which the parts of a plant are arranged
- biflagellate*, possessing two flagella
- bifurcate*, divided into two branches; forked
- bilateral*, having two matching sides
- bipinnate*, having pinnae on pinnae
- blade*, a flattened, leaf-like part of the thallus
- bladelet*, a small blade
- blunt*, not sharp
- branchlet*, a small branch
- brittle*, easily broken by snapping
- bullate*, having a blistered appearance
- bullation*, a blister
- calcareous*, stony and containing lime
- calcified*, encrusted with lime
- carposporangium* (pl. *carposporangia*), a reproductive cell of the carposporophyte
- carpospore*, a spore produced in a carposporangium
- carposporophyte*, the generation attached to the female plant which produces the carpospores
- cartilaginous*, hard, tough and elastic
- catenate*, arranged end to end like a string of beads
- central cell*, a cell of the axial filament (particularly in polysiphonous algae)
- chains*, a series of structures joined together end to end
- chamber*, a compartment
- chlorophyll*, the green colouring matter of plants
- chloroplast*, a plastid containing chlorophyll
- chromatophore*, a plastid containing chlorophyll and accessory pigments
- clavate*, club-shaped
- coalescent*, fused together

- coenocyte*, a multinucleate plant body without cellular divisions
coenocytic, having many nuclei per cell
compact, closely packed
compound, not simple
compressed, flattened slightly
conceptacles, fertile cavities opening to the surface of a thallus
constricted, drawn together
coralline, referring to the lime-encrusted red algae
cortex, the portion of the thallus external to the medulla or axial filament
cortical cell, a cell in the cortex
corticated, having a cortex
crustaceous, hard and crustose
crustose, crust-like, in a thin layer flattened against the substratum
cruciate, in two planes at right angles
cryptostoma (pl. *cryptostomata*), a sterile cavity containing hairs
cubical, having the form of a cube
cystocarp, the mature structure in red algae resulting from sexual reproduction
dentate, toothed
depression, a sunken area
determinate, incapable of developing beyond a limited extent
diaphragm, a partition or dividing membrane
dichotomous, branched by repeated forking
dichotomy, a forking into two similar parts
discoïd, in the form of a disc
dissected, divided into a number of parts
dissimilar, not the same
distichously, arranged in two rows or ranks
distromatic, two cells in thickness
egg, a non-flagellated female gamete
embedded, immersed
emergent, a raised outgrowth
encrusting, covering with a layer or crust
endophyte, a plant growing within another plant
endophytic, growing within the tissue of another plant
endozoic, growing within a part of an animal
epidermis, the outermost layer of cells in a plant
epiphyte, a plant growing epiphytically
epiphytic, growing superficially on the surface of another plant
epizoic, growing on the surface of an animal
evanescent, of short duration
face, a side
fasciculate, in a small cluster or tuft
fertile, with reproductive structures
filament, a branched or unbranched row of cells joined usually in a single series
filamentous, in the form of a filament
filiform, hair-like
flabellate, fan-shaped
flaccid, soft and flabby
flagellum (pl. *flagella*), the hair-like swimming organ by which a cell moves in the water
flexuous, winding
foliaceous, leaf-like, broad and flat

- foot*, a penetrating portion
forcipate, forked and incurved like crab claws
fruiting, bearing mature reproductive stages
functional, capable of functioning
gametangium (pl. *gametangia*), a sex organ in which a gamete or gametes are formed
gametophyte, the sexual generation of a plant
gelatinous, jelly-like
genicula, the uncalcified joints between successive segments of erect jointed coralline algae
geniculate, bent sharply; knee-like
gland cell, a colourless, usually refractive cell
globose, approximately spherical
gonimoblast, the carposporophyte
hair, a narrow filament arising from the surface of the thallus
hapteron (pl. *haptera*), the root-like portion of a holdfast (usually cylindrical and much-branched)
hemiparasitic, partially parasitic
holdfast, the structure by which an alga fastens itself to the substratum
host, the plant providing the substratum for an epiphyte or parasite
hyaline, translucent or transparent and colourless
hypothallium, the lower differentiated portion of a crustose alga
indeterminate, of unlimited growth, repeating the habit of the parent system
intercalary, occurring anywhere in a filament, not terminal nor basal
intergenicula, the calcified segment between the joints of a jointed coralline alga
interlacing, intertwined
intertidal, the zone between high and low tide levels
intramatrix, within the matrix
iridescent, having a shimmering of rainbow colours
isodiametric, having equal diameters
lacerated, torn
lamine, plate-like
lateral, situated at the side
lazily, loosely
leaflet, a small leaf-like branch
ligulate, strap-like
macroscopic, visible with the naked eye
marginal, at the margin
matrix, the surrounding or enveloping acellular substance
medulla, the central core of tissue of a multicellular alga
medullary, pertaining to the medulla
membrane, a thin, pliable, semi-transparent layer
membranous, like a membrane
meristem, a region of cells initiating growth
microscopic, visible only under magnification
midrib, a thickened longitudinal axis of a flattened plant
monosiphonous, consisting of a single series of cells
monospore, an asexual spore formed singly in a monosporangium
monostromatic, of a single layer of cells
multiaxial, with a medulla consisting of several parallel longitudinal filaments each of which terminates in an apical cell
multiflagellate, having many flagella
multinucleate, containing more than one nucleus

- multiseriate*, with several rows of cells
- nemathecium* (pl. *nemathecia*), an erumpent structure containing many spores
- non-confluent*, not touching one another
- nutritive filaments*, vegetative filaments contributing to the nourishment of a carposporophyte
- oogamous*, having oogamy
- oogamy*, union of gametes in which a sperm fertilizes an egg
- oogonium* (pl. *oogonia*), a female reproductive cell containing one to several eggs
- orbicular*, of approximately circular outline
- organ*, a part of the thallus specialized for some function
- ovoid*, shaped like an egg
- papillate*, having papillae
- parasitic*, growing on and obtaining food from another organism, the host
- parenchyma*, a group of thin-walled, non-elongated cells
- parenchymatous*, made up of parenchyma
- parietal*, borne on or near the side walls
- pectinate*, with branches restricted to one side of the axis and set close together like the teeth of a comb
- pedicel*, a narrow, stem-like support
- peltate*, having the shape of a round shield
- percurrent*, running through the entire length
- perfoliate*, with the stem-like portion extending through the blade
- perforated*, full of holes
- pericarp*, the sterile layer or layers of cells surrounding a carposporophyte
- pericentral*, surrounding a central monosiphonous axis
- perithallium*, the upper differentiated portion of a crustose alga
- perpendicularly*, at right angles to the surface
- pinna* (pl. *pinnae*), a primary axis of a pinnately branched thallus
- pinnate*, with branches on each side of a common axis; feather-like
- pit-connection*, a protoplasmic connection between adjacent cells
- plastid*, the specialized body or bodies within a cell containing chlorophyll and accessory pigments
- plurilocular*, containing more than one chamber
- pneumatocyst*, an air bladder or float
- polygonal*, having many angles
- polysiphonous*, composed of more than one filament and having tiers of parallel, vertically elongated cells
- polysporangium* (pl. *polysporangia*), an asexual spore-forming organ giving rise to more than 4 spores
- polystromatic*, made up of several cell layers
- pore*, a small opening
- prismatic*, having the shape of a prism
- processes*, outgrowths or extensions
- profusely*, liberally
- proliferation*, an outgrowth
- proliferous*, producing outgrowths, sometimes similar to the original
- prostrate*, lying along the substratum
- protoplasmic continuity*, having pit-connections or strands of protoplasm connecting adjacent cells
- pseudoparenchyma*, a tissue giving the appearance of a parenchyma
- pulvinate*, cushion-shaped
- pyrenoid*, a starch-forming centre usually clearly distinguished when stained with iodine
- recurved*, curved back

- reticulate*, in the form of a net
reticulum, a network
rhizoid, a filamentous attachment organ
rhizoidal, in the form of a rhizoid
rhizome, a prostrate stem-like portion of a thallus
rib, a thickened, ridge-like reinforcement in a flattened thallus
saccate, sac-like
scar cell, the basal remnant of a trichoblast
secretion, production of slime or mucous
segment, a joint or one of the portions into which the thallus is divided
septum (pl. *septa*), with transverse partitions
sessile, without a stalk
seta (pl. *setae*), a bristle or stiff hair
sheath, an enclosing layer
simple, unbranched
slimy, slippery
sorus (pl. *sori*), a group or cluster of reproductive structures
specific, confined to a single or a limited number of species
sporangium (pl. *sporangia*), a spore-producing reproductive organ
spore, a motile or non-motile reproductive cell which germinates and grows into a new plant
spermatangium (pl. *spermatangia*), the male reproductive organ of the red algae
sporophylls, specialized blades bearing sporangia
stellate, star-shaped
stichidium, a specialized, usually swollen branch producing rows of sporangia
stipe, the erect, stem-like portion of a thallus
stipitate, with a stipe
subimmersed, partly embedded
successive, following in regular order
subopposite, not quite opposite
subtidal, below the lowest low-tide level
superficial, on the surface
terete, cylindrical, tapering and rounded in sectional view
terminal, borne at the free end
tetrasporangiate, bearing tetrasporangia
tetrasporangium (pl. *tetrasporangia*), a sporangium containing four asexual spores
tetraspore, an asexual spore produced in a tetrasporangium
tetrasporophyte, the plant generation giving rise to tetrasporangia
thallus, the plant body
tissue, a group of cells similar in shape and function
trichoblast, a simple or branched, usually colourless, hair-like filament
tuberculate, with irregular warty outgrowths
tufted, in small bunches
ultimate, occurring in the last order
uncorticated, without cortication
undulate, wavy
unmasked, not obscured
uniaxial, having one axial longitudinal filament running down the center of the thallus
unilateral, occurring on one side only
unilocular, containing a single chamber
uninucleate, having only one nucleus
uniseriate, occurring in one row or series

unizonal, with a single zone or band of cells

vegetative, non-reproductive

veins, smaller branches from a midrib or slightly thickened, narrow regions within a blade

ventral, the lower surface

verticil, a whorl of branches

verticillate, having verticils

vesicle, an air bladder

vesiculate, with vesicles or small air bladders

whorl, a group of branches radially distributed about and attached at the same plane of an axis

zoospore, an asexual reproductive cell bearing flagella

zonal, arranged in layers

zonate, divided by lines parallel to the surface

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1957